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Connecting Research and Policy: How linkages support the use of research evidence in social policymaking

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Abstract

The notion that policymaking should be informed by evidence has been an attractive one to both government decision-makers and the community alike in recent years (Banks, 2009; Cherney & Head 2010; Nutley et al, 2007). The pursuit of "more" and/or "better" relationships has consistently been championed as an important strategy to improve the use of a research evidence base for social policy and practice (Nutley et al, 2007; Lavis, 2010; Bogenschneider & Corbett, 2010; Ross, 2011; Shergold, 2011). These relationships are often referred to as "linkages" in the literature, and it is recognised they can be diverse in form (Nutley et al, 2007; Weiss, 1995).

A strong association between linkages and research utilisation has been found by a number of empirical studies reported in the literature (for example, Landry et al, 2001a, 2001b; Landry et al, 2003; Cherney & McGee, 2011). Many more studies identify linkages as a facilitator for research use or report that a lack of linkages is a key barrier to research uptake (Innvaer et al, 2002; Helmsley-Brown, 2004; Mitton et al, 2007; Oliver et al, 2014). However, very little work has been undertaken to systematically identify how linkages between university academics and social policy-makers shape key processes associated with evidence-based policy-making.

This PhD research project used a mixed methods approach, drawing on data gathered via large-scale survey and interview processes with Australian social scientist academics and public servant policymakers, to investigate:

- the types of linkages are predominant between academics and policymakers;
- the key barriers to and facilitators for developing and sustaining linkages;
- how linkages relate to a capacity for research utilisation in policy making contexts; and
- how linkages can be enhanced to support the policy uptake of social research evidence.

A wide range of linkage arrangements were identified from the data sources. The character and scope of participation in linkage relationships was shaped by a range of interacting, context-dependent factors, including the political environment, dominant paradigms about the role of government in shaping policy and program provision within a sector, differences

in infrastructure and resourcing between policy sectors and departments, and the culture, norms and values within policymaking organisations.

The findings of multiple linear regression models applied to academic and policy official survey data revealed a strong association between participation in linkage activities and research utilisation.

Linkages were found to build academic and policy official capacities separately, by enhancing individual and organisational knowledge, skills and approaches for research production and use. However, linkages were also found to underpin the development of important new joint capacities, such as the capacity to efficiently and effectively co-produce research. Importantly, both policy officials and academics highlighted the value of linkages for creating the mutual trust, respect and "common ground" that meant they had the confidence to capitalise on the additional capacities their relationships provided for them.

Policy officials and academics reported how linkage relationships required significant investment in the first instance, but become more self-sustaining as mutual trust, respect, knowledge and skills were grown over time. Thus, in addition to their role in shaping more well-developed capacities for research production and use, linkages also build capacities that enhance linkages.

Finally, this research project identified a number of clear ways that linkages support building "reservoirs" of policy-relevant research, and creating a profile for these. Academics and policy officials noted how their relationships helped them to monitor policy contexts and then mobilise research resources effectively as policy opportunities arose. In doing so, linkages create a much greater potential for research to play a role in shaping policy directions and implementation. Such functions for linkages have not been an overt consideration to date in theoretical frameworks attempting to explain EBP.

The thesis concludes by drawing on the findings of the project to offer an inductively developed, evidence-based model that captures a more integrated way of understanding the influence of linkages in social policymaking. The development of this model provides a rationale for supporting an ongoing investment in linkages in policymaking contexts. The model also provides a strong foundation for future work to explore how linkages can be employed more strategically across a full range of policymaking contexts to enhance EBP.

Declaration by author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, survey design, data analysis, significant technical procedures, professional editorial advice, and any other original research work used or reported in my thesis. The content of my thesis is the result of work I have carried out since the commencement of my research higher degree candidature and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

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Publications during candidature

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van der Arend, J. (2014). "Bridging the research/policy gap: policy officials' perspectives on the barriers and facilitators to effective links between academic and policy worlds." Policy Studies **35**(6): 611-630.

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Material published in this paper has been drawn upon in preparing a number of sections of this thesis – in particular, material pertaining to policy officials in Chapter 5 and the policy official multiple linear regression model analysis presented in Chapter 6 – as noted in the thesis document itself.

Contributions by others to the thesis

This thesis was undertaken as part of an ARC Australian Research Council (ARC) funded Linkage project (LP100100380) entitled “The Utilisation of Social Science Research in Policy Development and Program Review”, and drew from the data gathered for that project.

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Research utilisation; evidence-based policy; linkages; research relationships; knowledge mobilisation; knowledge brokering; policy officials

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LIST OF ABBREVIATIONS USED IN THE THESIS

ABS	Australian Bureau of Statistics
AHURI	Australian Housing and Urban Research Institute
AIFS	Australian Institute of Family Studies
ARACY	Australian Research Alliance for Children and Youth
ARC	Australian Research Council
CHSRF	Canadian Health Services Research Foundation
COAG	Council of Australian Governments
DEC	Department of Education and Communities
DEEDI	Department of Employment, Economic Development and Innovation
DEEWR	Department of Education, Employment and Workplace Relations
DET	Department of Education and Training
DHS	Department of Human Services
DPCD	Department of Planning and Community Development
EBP	Evidence-Based Policy
ERA	Excellence in Research for Australia
FACS	Department of Family and Community Services
FaHCSIA	Department of Families, Housing, Community Services and Indigenous Affairs
ISSR	Institute for Social Science Research
KTE	Knowledge Transfer and Exchange
NGO	Non-Governmental Organisation
UQ	University of Queensland

CHAPTER 1- INTRODUCTION

Linkages, or relationships between academics and policymakers, are considered particularly important for supporting the use of social research evidence in social policymaking (Nutley, Walter & Davies, 2007). As Nutley et al. (2007, p75) highlight, "One of the best predictors of research use is…the extent and strength of linkages between researchers and policy-makers..." However, to date our understanding of these linkages, including the factors and processes that promote and shape linkages, and the specific ways that they support research use, is still in need of development. In the absence of empirical evidence on linkages, an appreciation of the significance of linkages for promoting evidence-based policy has involved mostly "common sense" hypotheses about their role in research use, underpinned by a combination of logical applications of theoretical frameworks to real life situations, implicit knowledge, and personal experiences. Understandings of linkages, as portrayed in the literature, tend to emphasise instrumental uses of research (although, they are increasingly recognising more conceptual uses) and overcoming "two cultures" as key functions. This is in contrast with current thinking around research utilisation more broadly, which would suggest that research influence in policy contexts is complex, multi-faceted, iterative and context dependent. This thesis has been undertaken as part of an Australian Research Council (ARC) Linkage project entitled "The Utilisation of Social Science Research in Policy Development and Program Review". It draws on research data collected via large-scale survey and interview methods with Australian academics and public servant policymakers to explore a fuller range of types, functions and influences of linkage relationships. In doing so, it postulates that linkages serve multiple important purposes in supporting the uptake of research knowledge in the policymaking process.

RESEARCH CONTEXT

A growing emphasis on evidence-based policy and research impact

Evidence-based policy (EBP) has become a prominent topic for public consideration and debate in Australia and overseas in recent years (Banks, 2009; Kay, 2011; Cherney & Head 2010; Nutley et al, 2007). EBP highlights the systematic problem-solving of policy issues drawing on a variety of evidence, including research and evaluation studies. EBP involves not only instrumentalist applications of research evidence, where research directly underpins decision-making, but indirect applications where research shapes how problems

are framed and understood – referred to as the conceptual use of research (Nutley et al, 2007). However, as Cherney and Head (2010) highlight there are a number of areas where the adoption and application of EBP have been, and continue to be, contested – including the political and ideological aspects of how problems are framed, what counts as reliable evidence and how evidence-based approaches should be applied across policy contexts.

Despite these complexities, the notion that policy-making should be informed by evidence is an attractive one to both government decision-makers and the community. Banks (2009, p4), for example, highlights the important role evidence must play in the development of public policy: "Without evidence, policymakers must fall back on intuition, ideology, or conventional wisdom – or, at best, theory alone. And many policy decisions have indeed been made in those ways. But the resulting policies can go seriously astray, given the complexities and interdependencies in our society and economy, and the unpredictability of people's reactions to change."

An emphasis on EBP means that academic research producers are under increasing pressure to produce, and make available, research that is relevant to policymaking processes. This is influencing the character of research produced by universities, with Australia's Group of 8 Universities (Go8) reporting substantial growth in applied research activities (and a corresponding reduction in basic research activities) across Australian universities (Go8, 2012).[1] The Go8 (2012, p47), citing Armstrong (2003), argue that this shift in research activity is also underpinned by a trend towards commodification of government funded university research capacity by Governments around the world. Running alongside the shift in research focus within Universities has been a mounting need to demonstrate the "real world" impacts of their research. Current performance evaluation for academics continues to focus on outputs that have traditionally been prioritised, such as the quantity and quality of an academic's journal publications, using tools such as the Excellence in Research (ERA) measure. However, universities are increasingly endeavouring to quantify other activities that support applied research endeavours, such as an academic's ability to access contract work and research funding. Recognition of the need

[1] Australia's Group of 8 Universities (Go8), in a recent paper on world university rankings, highlighted that basic research, which represented 76.7% of university research in Australia in 1969, had reduced to 45.2% by 2010. Over the same period applied research increased from 19.7% to 46.7% of university research, making it the dominant type of activity (Go8, 2012, p6).

for better ways to assess the impacts of academic research, which are not captured by these current measures, have driven current debates and pilot measures being put in place to explore how this kind of evaluation can be best undertaken. Carden (2004) highlights that this focus on impact itself creates new pressures on academics to identify and engage in strategies that increase the potential for their research to have influence, in addition to carrying out high quality research itself.

For EBP to be effective, policymakers need to be receptive to evidence at all stages of the policy development and implementation cycle. Useful research evidence products, the expertise to produce these, and important capabilities for interpreting and applying them, are frequently located in sources external to public sector agencies, such as universities, research centres and think tanks. This can be problematic for EBP, as public sector agencies have often been found to be distrustful about relying on external sources of expertise, preferring to use analyses generated internally instead (Hall & Jennings 2010; Lester 1993).

Where policymakers are proactive about pursuing external research evidence, recent public discourse around EBP in Australia and abroad has highlighted that there is a need for more effective ways of disseminating and communicating social research (Nutley et al, 2007). For example, Terry Moran, then secretary of the Australian Department of Prime Minister and Cabinet, has stated that academic research is often "…lost without translation, rather than in translation. Policy-makers want to use the best research we can, but it needs to be realistic and digestible. We also need it to be accessible…" (cited in Ross, 2011).

Ultimately, despite academics' and policymakers' best efforts to produce and use research to support EBP efforts, academics often still argue that policymakers ignore the research they produce, while policymakers argue that research is not relevant enough to their needs (Bogenschneider & Corbett, 2010; Cherney et al, 2011). Significant work has been undertaken and documented in the research utilisation literature to understand why academic and policymaker efforts are not always as fruitful as intended, and to begin to identify strategies to better connect research and policymaking processes. Fundamental to all of this work to date has been the ongoing pursuit of a better appreciation of what is actually meant by the "use" of research in policy contexts.

Research utilisation – what do we mean?

What is understood by "research utilisation" has evolved over time, with several identifiable "waves" of attention, each encompassing a different focus for interest and the development of some specific themes (Newman & Head, 2015).

Research utilisation terms first arose in the 1970's, when there was a growing academic interest in the influence that academic research might have on the public policy process (Sabatier & Jenkins-Smith, 1988). The focus of this attention in the literature was firmly from a research producer perspective, with academics exploring whether or not research was used by policymakers and, if so, how it was used (Caplan, 1979; Weiss, 1977; 1979a; 1979b; 1980; Bardach, 1984). The barriers to research utilisation were framed around "two communities" perspectives, which essentially highlight how cultural dissonance between incompatible academic and policy worlds makes effective connections between research and policy challenging.

The next wave of attention came in the late 1990's and early 2000's, with this discourse emphasising a new policy focus. Rather than highlighting how academics can better communicate their findings, the literature began to explore how research can influence complex public policy processes. Research evidence was conceptualised as an important informant of policymaking processes in order for policy decisions to be optimum. This new wave of discourse has been referred to as the EBP movement, and its development has been depicted by authors such as Nutley et al., 2000; Nutley & Webb, 2000; Sanderson, 2002; Nutley et al, 2007; Head, 2008; Banks, 2009; Bogenschneider & Corbett, 2010).

Until fairly recently, the EBP discourse traditionally emphasized themes around the instrumental rationality of policy-making – highlighting EBP as the search for the "best"/"right" evidence and its application to achieve the "best"/"right" solution to policy problems. However, there is a growing body of literature that questions the linear, rationalist and technocratic approaches to policymaking implied within this perspective. Many suggest that the very nature of policymaking means it is seldom a "rational" process – and being more of a political process, it is legitimately informed by less rational/scientific influences such as values, ideology and traditions. Values, ideology and traditions, it is further argued, will ultimately also play a role in framing what is considered research evidence, how it is applied and how the impact of that research evidence is assessed. (Adams, 2004; Biesta, 2007; Parsons, 2002, Hird, 2009; Lomas & Brown, 2009).

Underlying some of the debate about the usefulness of EBP as a concept then, lies questions about exactly what constitutes worthwhile uses or impacts for research evidence in policy processes. Examination of the vast literature on this subject alone highlights the complexity surrounding both conceptualising and practically measuring research impact and use.

Many different "types" of use have been suggested across the literature. One of the earliest and most influential pieces of work around this was by Weiss (1979b) in the 1970's, which proposed three broad types of research use – instrumental uses (which result in direct uses that underpin policy changes or practice), conceptual uses (which bring about changes in awareness, perceptions, knowledge and understandings) and symbolic uses of research (where research is drawn upon to support decisions or policy directions that have already been made, with research evidence thus seldom being drawn upon to develop policy responses outside of the dominant political frameworks). These terms are still the most commonly used today, although symbolic uses are more often referred to as political or tactical uses of research (Nutley et al, 2007; Tseng, 2008; Head, 2008; Bogenschneider & Corbett, 2010). Efforts to refine these broad themes, such that other more nuanced understandings of types of use can be documented and inform ongoing research and evaluation efforts, have mostly not been widely taken up in the literature. However, work that has highlighted the need to conceptualise research use as more of a continuum of uptake – with utilisation then being framed as a range of outcomes from simply being aware of research findings, through changing knowledge and understandings of policy problems, to direct changes in policy decisions or the delivery of services – has had greater impact. This continuum is not viewed as something researchers will progress through in some kind of uniform or systematic way, but more of a way of simplifying the mess, iterative processes associated with research uptake (Walter et al., 2005).

Once different types of research use are identified and acknowledged, issues of how achievable and worthwhile each type of use are arise. In EBP contexts, the conceptual and political uses of research can perhaps reasonably be considered more relevant and achievable than instrumental uses.

Lomas & Brown (2009, p905) suggest that the historical emphasis on more instrumental uses for research implied in EBP may flow from indiscriminate appropriation of terms and concepts from evidence-based medicine in the early days of EBP's theoretical development.

They argue that due consideration needs to be given to the different contexts for applying research evidence, which makes EBP uses of research more likely to be sensibly conceptual in nature: “There are major contrasts in the realistic expectations of how evidence, particularly evidence created by researchers is treated and can be used for civil servants for policy advice rather than medical authorities for clinical guidance evidence-informed versus evidence-based decisions, conceptual enlightenment versus instrumental solutions, and a way of thinking and catalyst for debate versus an attenuation of thinking and diversion around disagreement.”

The notion that conceptual uses of research are a core part of the process by which knowledge is transformed or contextualised in the theoretical research utilisation literature have also been highlighted. In fact, this perspective continues to cement itself within the literature, with increasing attention being given by researchers to the social processes associated with research use (Levin, 2011 & 2013; Moss, 2013, Davies et al, 2008; Walter et al, 2009). This body of work, typically referred to as knowledge mobilisation theory rather than research utilisation, emphasises the processes between production and use contexts – particularly interactive processes – which are required to re-shape research evidence in order for to have impact in policymaking. Political uses of research in policymaking, which are sometimes referred to as tactical or pragmatic uses of research, have perhaps garnered less attention in the research utilisation literature. Where they feature, they are often painted as less than ideal. However, the political nature of the policymaking process is well known. Policy is influenced as much by values, ideologies, and contextual circumstances as by research evidence. So the political use of research evidence in seeking to explore and respond to policy problems in inherently political contexts is perhaps inevitable, and it could be argued, desirable. As Newman and Head (2015, p389) highlight, “Agenda setting is a political task, as is the identification of policy objectives. Because much of policy making is political, the use of research in the policy making process is often political as well.” Further, Kay (2011), in proposing a more pragmatic approach for understanding EBP, suggests that evidence use encourages and supports the ongoing revision and evaluation of policy decisions, and in doing so provides the impetus for continued communication and participation in policy debates. In this sense EBP can be considered to underpin political rationality in policymaking processes.

Even if multiple forms of research use are widely acknowledged and accepted, the task of identifying when these have taken place or how much effect they have had is not necessarily

any more achievable. Measurement of research impact often relies on self-reporting which can be highly unreliable. Conceptual uses of research are not always observable. (Dobbins et al., 2007; Tseng, 2007). Further, as highlighted by the LSE (2008, p33), "Because the dynamics of policy-making are crowded with many sources of influence, we should not expect to see any simple examples of one-to-one impacts…." The difficulty in measuring the specific impacts of research has a flow on effect to research studies that aim to identify and explore the circumstances and strategies that best support research utilisation – including the value of various linkage strategies – because their effectiveness is not easily demonstrated in terms of outcomes.

The most recent focus for the evolution of research utilisation, as suggested above, has focused less on debate around the value of research evidence in policymaking, and more on the processes by which value is attached to research knowledge and research is integrated into policy. Not only has research utilisation in policy contexts been reframed from evidence-based policy to evidence-informed policy, but the notion of research "use" has been redefined. New terminology such as "knowledge mobilisation", "knowledge integration" or "knowledge transfer and exchange" have been coined to better represent the social processing of research evidence required for it to be drawn upon in shaping policy thinking and outcomes. This progression in research utilisation theory has better enabled the conceptual and political impacts of research to be recognised and accounted for in policy processes. Theory and concepts around mobilising knowledge will be discussed in greater detail chapter two, as part of a review of the literature, as they have particular importance for understanding the significance of linkages in research utilisation.

Understanding the challenges/barriers to research utilisation

A significant body of literature focuses on identifying and/or compiling research evidence and/or theoretical explanations for the use or under-use of research in policymaking, with the idea being that this can help to inform realistic strategies for enhancing research utilisation (Nutley et al., 2000; Nutley et al., 2007; Bogenschneider & Corbett, 2010; Innvaer, 2002;Lavis 2010 Helmsley-Brown, 2004; Oliver et al, 2014).

Bogenschneider & Corbett (2010, pp7-8), consider that a number of common themes can be found amongst the plethora of explanations for research underuse. The table on the following page summarises prevalent theoretical explanations in the literature, using Bogenschneider & Corbett's (2010) themes to structure them.

Table 1 – Accounting for the Underutilisation of Research in Policymaking

THEME	THEORETICAL EXPLANATIONS PREVALENT IN THE LITERATURE
Reasons related to the character of the policy making process	• Unreasonable expectations about what research can contribute to complex policy making processes • Policy decisions are not driven solely by science – values, ideology, politics, power etc. all play an equally important role in shaping policy processes and outcomes • Policy contexts can change rapidly and science cannot always accommodate the pace of this change
Reasons related to the structure of democratic institutions	• Democratic decision-making is not a rational, linear process – complexities constrain the role of science • Power is fragmented across democratic institutions – conflicts can "paralyse" decision-making
Reasons related to the nature of "scientific" inquiry	• Scientific inquiry is better at exploring technical and factual issues than policy issues, which typically are highly influenced by values, interests, and tacit perspectives • The questions policymakers ask are not often in line with the kinds of answers that science can provide • The kinds of methods most often associated with the scientific inquiry process mean that researchers cannot always respond to policy information needs within necessary timeframes
Reasons related to the "wicked" nature of social problems	• Science depends on definable problems, known (or at least agreed upon and desired) end, and the existence of plausible solutions. In contrast many social problems are characterised by little consensus on specific end goals and no consensus on underlying explanatory theories or desired strategies for developing and implementing responses.
Reasons related to differences in the institutional environments that researchers versus policymakers operate within	• Institutional incentives for policymakers and researchers are markedly different. Researchers are highly driven by the imperative to publish, the need to maintain a strong reputation amongst academic research peers and the desire to produce theoretically sound research products. Policymakers are highly driven by political and practical imperatives and the need to satisfy a very broad range of policy stakeholders. • Policymakers often seek distinct solutions in a context of ambiguous or ever-shifting policy problem definition. Researchers are comfortable with indistinct research outcomes, but require much greater clarity around how policy research questions are framed.

Linkages - a key interface for research utilisation

Despite the many complexities associated with the notion of research utilisation, and the broad range of barriers to research use in policymaking, discourse around EBP in Australia and abroad has often highlighted the need to strengthen relationships between academic producers and policymaker users of social research as the answer to making research more accessible and relevant. (Nutley et al, 2007; Lavis, 2010; Bogenschneider & Corbett, 2010; Ross, 2011; Shergold, 2011). These relationships, are often referred to as "linkages" in the literature, as it is recognised that they can be diverse in form (Nutley et al, 2007; Weiss, 1995). The role of linkages in the uptake of research is evident across a range of theories drawn upon to explain research use in policymaking. A strong association between linkages and research utilisation has been found by a number of empirical studies (for example, Landry et al, 2001a, 2001b; Landry et al, 2003; Cherney & McGee, 2011) with many more identifying them as a facilitator supporting research use or reporting that a lack of linkages is a key barrier to research utilisation (Innvaer et al, 2002; Helmsley-Brown, 2004; Mitton et al, 2007; Oliver et al, 2014). This means that the pursuit of "more" and/or "better" relationships has consistently been championed as an important strategy to improve the use of a research evidence base for social policy and practice. However, very little work has been undertaken to investigate different relationship types, or to consider the specific roles and functions of linkages in policymaking, so that such linkage strategies might be most effectively designed and employed (Lomas, 2000; Nutley et al, 2007; Ross et al, 2003).

RESEARCH AIM AND RESEARCH QUESTIONS

My PhD project aims to address fragmentation in the knowledge base around linkages, by using an inductive, evidence-based approach to systematically identify how linkages between university academics and social policymakers shape fundamental processes associated with EBP. It will map the key types of relationships that exist between academics and social policymakers, to identify the factors and processes shaping these relationships, and to identify the specific functions that linkages serve in supporting research use. It has been undertaken as part of a broader Australian Research Council (ARC) Linkage project.[2]

[2] The broader state-funded ARC Linkage project, entitled "The Utilisation of Social Science Research in Policy Development and Program Review", explored the ways in which social science research is used within government policy contexts, the conditions and circumstances that support or hinder the use of this research,

The specific research aim and research questions adopted for my project are outlined below:

Research aim

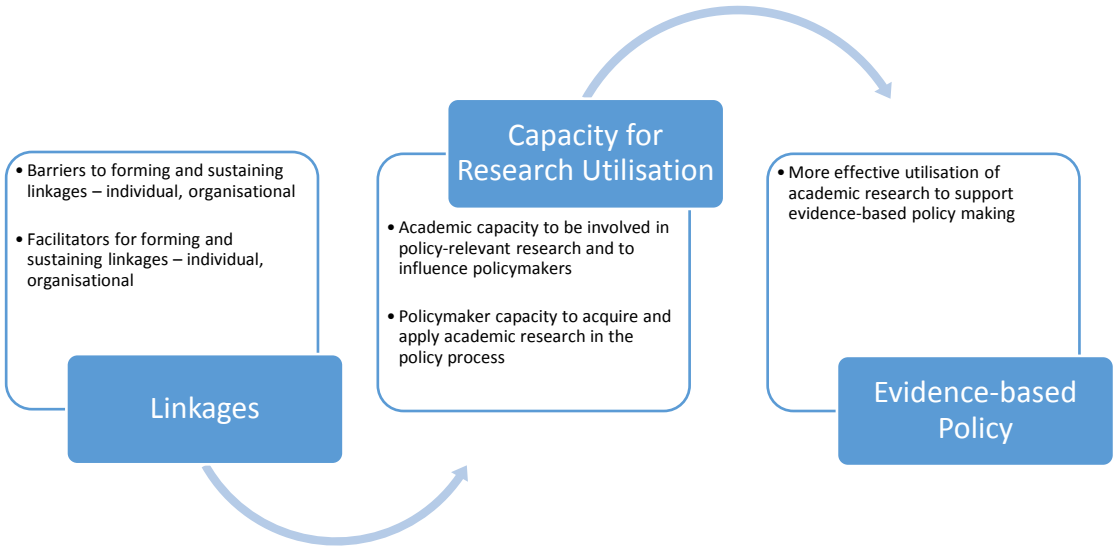
To explore how linkages between university academics and social policymakers shape the process of evidence-based policy-making.

Research questions

1. What types of linkages are predominant between academics and policymakers?
2. What are the key barriers and facilitators to developing and sustaining these linkages from an academic perspective compared to a social policymaker perspective?
3. How do these relationships relate to a capacity for research utilisation in policy making contexts?
4. How can linkages be enhanced to support the policy uptake of social research evidence?

This aim and research questions may be better understood by considering them in the context of the following figurative representation of the focus for my project – where linkages are conceptualised as shaping both the academic and policymaker capacities required for effective research utilisation in policymaking processes.

Figure 1 - Research Focus



and identified models for enhancing the policy relevance of social research knowledge. Being a Linkage project, it was implemented in partnership with nine state and Commonwealth linkage partners.

KEY CONCEPTS DEFINED

There are a number of key terms and concepts used throughout this thesis, which can helpfully be defined at this point.

Linkages

"Linkages", for the purpose of this thesis, are considered to refer to the full range of relationships that create "connectedness" between social policymakers and academic researchers. This definition is intentionally broad, such that the term is able to encompass a wide range of relationship types – including formal versus informal networks, face-to-face interpersonal exchanges versus intermediated exchanges, and highly-structured versus more organic relationships.

Research utilisation/research use/research impact

It is important to clarify what is meant when referring to "research utilisation". This term is often used interchangeably in the literature with terms such as "research use" and "research impact" – as it will be in this thesis document. The complex nature of understanding and measuring the various types of research impact has already been outlined briefly, by way of context-setting earlier in the chapter. An absence of consistent use of the terms in the theoretical literature, the use of a variety of different ways for framing and measuring research utilisation in the empirical literature, and an exploratory focus on linkages for this research project, make rigorous definition and systematic use of terms for this project impractical. Instead "research utilisation", "research use" and "research impact" – unless specifically indicated - can all be considered to imply all or any of the various types of uses of research – conceptual, instrumental and political – that have been identified in policymaking contexts.

Evidence-based policy

Davies (2004, p3) defines EBP as an approach that "…helps people make well-informed decisions about policies, programmes and projects by putting the best available evidence from research at the heart of policy development and implementation." As noted earlier in the chapter, this term was widely adopted to refer to more policy-focused conceptualisations of research utilisation in policymaking. In more recent times it has also often been referred to as "evidence-informed" or "evidence-aware" policymaking, to acknowledge both a growing recognition of the complexity of other legitimate influences on policymaking

processes and to better reflect a range of research impacts that are broader than the instrumental uses of research evidence (Nutley et al, 2007).

Research/research evidence

A broad interpretation of the terms "research" and "research evidence" have been adopted in this thesis. Research should be understood as "…any investigation towards increasing the sum of knowledge based on planned and systematic enquiry." (Nutley et al, 2009, p2) The research of interest is that undertaken by social scientist academics – who may be auspiced by universities, research centres/institutes or think tanks, or be employed in the public sector. In terms of research products, Court & Young (2006) suggest that a broad view of research means that these might involve any outcome of a methodical process of critical investigation, evaluation, theory-building, data collection, codification, analysis or review.

Policymaking and policymakers

This thesis adopts Bogenschneider's (2010) broad definition of policymaking, where policy is considered to be both the development and implementation of a plan or a course of action carried out through law, rule, code or other mechanism in the public or private sector. Policymakers, theoretically, should be considered to be both the political and administrative decision-makers who play a role in gathering policy information, developing policy advice, creating policy documents and tools, implementing and evaluating these (Page, 2012). However, given the nature of data drawn on for this project, this thesis is really only able to draw conclusions pertaining to the experiences of policymakers in administrative roles.

Terms that describe research use processes

There are a number of key terms drawn on in the literature, and in my thesis, to describe research use processes in policymaking. These include dissemination, knowledge transfer, knowledge exchange, knowledge translation and knowledge mobilisation. Identifiable, distinct definitions can be found for each of these, although in practice they are often referred to interchangeably in the literature. This may be partly because, while the definitions for each of these terms might emphasise different qualities associated with the processes involved in imparting and taking on research, in practice it can be difficult to identify the specific character of research use from context to context. Definitions for these terms are as follows:

Dissemination – "…the promulgation of knowledge products to increase stakeholders' awareness of them or the specific and discrete strategies used to promulgate knowledge products" (Graham et al, 2006, p 17). There is little emphasis on the processes for developing knowledge or the actual uptake or implementation of knowledge in understanding this term.

Knowledge transfer – the transfer of "…good ideas, research results and skills between universities, other research organisations, business and the wider community to enable innovative new products and services to be developed" Graham et al (2006, p22). Thus, this term is not dissimilar in meaning to "dissemination".

Knowledge exchange – the "…collaborative problem-solving between researchers and decision-makers that happens through linkage and exchange" Graham et al. (2006, p15) citing the Canadian Health Services Research Foundation (CHSRF).

Knowledge translation - describes how knowledge is turned into action – it encompasses the processes of both knowledge creation and knowledge application (Graham et al. 2006).

Knowledge mobilisation – encompasses methods of knowledge transfer, translation and exchange, and extends them to include the co-production of knowledge aims to capture the two-way connection between researchers and research users, the capacities and the social processes that underpin research utilisation – it (Moss, 2013; Phipps & Shapson, 2009).

Having defined key terms used in the thesis, this chapter now provides an overview of my research methodology.

RESEARCH METHODOLOGY

This PhD project involved a mixed methods approach, drawing on quantitative and qualitative data gathered via large-scale survey and interview processes with Australian social scientist academics and public servant policymakers[3] for a broader ARC Linkage project. The data sets used, more specifically, were:

- A targeted survey of Australian academic social scientists (n=693)
- A targeted survey of (n=2084)
- Semi-structured interviews with a selection of academic social scientists (n=100)

[3] These public servant policymakers are also referred to as "policy officials" throughout this thesis document.

- Semi-structured interviews with a selection of public servants in various policy roles in state and federal government agencies (n=125)

Sampling methods for each of the data collections endeavoured to target respondents who would be best positioned to inform inquiry around the enhancement of research impact in policymaking processes. Thus, all of the data set sample groups reported experience in working at the research-policy interface via a range of strategies, including joint projects.

A mixed methodology approach was adopted for the analysis of this data, as it is considered particularly useful in instances where the research issues being explored are complex and the research is exploratory – both defining features of my PhD project. The mixed methods approach enabled data gathered via survey instruments to be illustrated and extended via interview data. For example, survey data provided information on which linkage factors are relevant to research uptake - interview data also provided information on which factors are significant, but enabled "how" and "why" questions to be explored. Results from the analysis of each data set were compared and contrasted across data collection methods to identify convergence in key findings and conclusions.

The thematic analysis of qualitative interview material using multiple analysis tools (NVIVO and Leximancer), was also employed to create greater confidence in my research conclusions.

This project makes a unique contribution to the research utilisation literature due both to its innovative focus and methodology.

As suggested earlier in the chapter, and as will be highlighted further in the following literature review chapter, empirical research efforts focusing specifically on the nature and functions of linkages in supporting research utilisation are extremely limited to date. Not only is this project one of the first to take a more in-depth, systematic look at linkages in policymaking, but it draws on a data source that is distinctive for its size, focus and scope.

The datasets collected for the broader ARC Linkage project, and drawn upon for my project, are the first large-scale data collections undertaken in Australia to explore the issues of social policy research production and its impact on policymaking.

Not only are the datasets large however, but they gather the perspectives of both public servant social policy officials and social research academics, enabling these perspectives to be compared and contrasted. Further, academic research respondents included a broad

range of disciplines and policy official respondents worked in a broad range of policy sectors, across Commonwealth and state government settings, and came from both line and central agency settings. This vast array of research and policymaking experiences supports more nuanced identification of research themes and enhances the generalisability of findings.

Individual and organisational level dimensions of research use were canvassed by the research tools used to gather data, meaning that a number of key theoretical frameworks could be considered in interpreting data outcomes.

The use of both quantitative and qualitative methods enables the complementary strengths of each methodology to be drawn upon.

STRUCTURE OF THE THESIS

This thesis is structured into a number of chapters.

Chapter two provides an overview of the literature, highlighting key models and theories for research use in policymaking that highlight or imply a significant role for linkages in shaping research uptake. This is followed by an overview of empirical research focusing on linkages, which aims to demonstrate current weakness in the evidence-base for linkages, as well as to document what research has revealed about linkages to date. The chapter concludes by siting the focus and research questions for this project in a context of current gaps in knowledge evident in the literature.

Chapter three outlines the methodology used for this research project in greater detail. It provides more information on how each of the datasets was collected and provides an overview of the key characteristics of the respondent samples. The mixed methodology design for data analysis is outlined more fully. Further, more specific information on the data analysis tools and strategies adopted are provided.

The findings are presented across the following three chapters. Chapter four focuses on outlining findings around the types of linkage activities academics and policy officials report participating in, and begins to explore what shapes their participation in these by documenting material around linkage preferences and highlighting the context-dependent nature of linkages. Chapter five extends an understanding of the factors and processes shaping linkage participation, by presenting an analysis of reported barriers and facilitators to being involved in linkages. Chapter six documents research findings around the reported functions of linkages in supporting research use. It concludes by outlining the results of

regression analyses that aimed to explore the relationship between linkages and research impact as measured via the survey instruments. This has been presented last, rather than first in this thesis document as it was considered important to try interpret and understand the regression findings in a context of broader findings from this research project.

Chapter seven provides a conclusion to the thesis. It commences by providing a brief recap of key findings presented throughout the thesis. It then moves on to addressing the research questions for this project more specifically, highlighting how the project's findings provide insight for each of the questions and noting where knowledge gaps still exist. This chapter, and the thesis, conclude by suggesting a number of important implications for both future research and practice.

This first chapter of my thesis has introduced the focus, methodology and specific research questions for my research project. In doing so it has endeavoured to provide a broad context for my research, by presenting a brief overview of the complexities and challenges associated with EBP, and by briefly outlining why linkages have been considered important in supporting efforts to enhance the uptake of research in policymaking processes. In the next chapter, I will explore the theoretical and empirical literature around linkages more explicitly to develop a more specific context for my research project and its findings. Facets of the context to be addressed via a review of the literature will include an overview of models for policymaking that suggest a role for linkages in research uptake, consideration of a number of key theories that highlight how linkages support research use in policymaking and a summary of empirical research on linkages to date, noting key findings and current knowledge gaps.

CHAPTER 2 – LITERATURE REVIEW

INTRODUCTION

This chapter reviews the vast and fragmented literature around research utilisation and linkages. It suggests that published work to date has largely been concentrated at a conceptual level, focusing predominantly on debates about the nature and relevance of research use in policymaking and efforts to better understand and achieve consensus on what research impact actually is in policy contexts. Much of this has not itself been informed by evidence. As Levin 2013, pp3-4) highlights:

"Although there is much more writing about mobilising research knowledge than used to be the case, much of it is still more conceptual or rhetorical than empirical. There are many works analysing situations, decrying weaknesses or proposing actions, but not nearly as much careful evidence on how and why research evidence is actually used in practice...The irony has been noted more than once that the debate over the use of research is itself not well informed by research".

Different themes have been emphasised in the literature over time. The need to overcome cultural barriers between the users and producers of research was a prevalent topic early in the inception of concepts around research utilisation – ideas around the social processing of knowledge have been more significant in recent times, with research utilisation being reconceptualised as knowledge transfer and exchange (KTE) or knowledge mobilisation. Empirical work has largely involved efforts at capturing broad understandings of research utilisation – particularly to assess the extent to which research uptake occurs (through the development and operationalisation of strategies to measure elusive impact) or to identify the factors that act as barriers and/or facilitators to research use. More nuanced research, such as projects that explore contextual differences in research utilisation, are not a significant feature of the research utilisation evidence-base to date. Further, research with a functional focus seem to be a missing link between conceptual work and efforts to develop practical research utilisation enhancement strategies. The minimal nature of research efforts aimed at better understanding the role of linkages in supporting research utilisation illustrates these gaps. The narratives around linkages in the literature flow as the logical or tacit conclusions of an application of interaction type theories, such as "two communities" theory, for understanding research utilisation or the barriers to research utilisation in

policymaking. Where empirical research around linkages exists, it has seldom concentrated on mapping the specific ways in which linkage relationships support research uptake. Further, very little has been done to explore the possible differences in feasibility, relevance or impact of different kinds of linkages in different contexts.

This chapter starts by providing a quick overview of the broad models for policymaking drawn upon in various ways by the research utilisation literature in order to make sense of where research fits, or could fit, into policymaking processes. The influence of linkages is emphasised in a number of these models. Presentation of these broad models is followed by a brief overview of more functional ways of understanding and describing research utilisation in the literature. Some authors argue that these are the missing link between theory and practice – and need to be explored and documented more fully to support efforts to develop strategies to enhance research utilisation. The chapter then outlines a number of more specific key theories in the research utilisation literature that either explain or imply the significance of the influence of linkages in supporting research uptake. As suggested in the introduction to this chapter, some of these theoretical frameworks and have been more dominant in shaping understandings around linkages over time, with the emphasis on their importance changing as understandings of research utilisation have evolved. The current emphasis on understanding research utilisation as "knowledge mobilisation" will be then be presented in some detail, as this way of conceptualising research use implies many potential functions for linkages (as well as supporting the development of a body of knowledge to underpin the specific linkage practice of "knowledge brokering"). As such, "knowledge mobilisation" may be the most useful theoretical framework for more fully understanding the significance of linkages in research use to date. The chapter then moves on to summarising linkage-related empirical research findings. In doing so, specific gaps in the knowledge base around linkages are highlighted. The chapter will conclude by indicating how responding to the research questions for this project will begin to address some of these gaps, and to provide a better framework for pursuing future research activity.

POLICYMAKING MODELS AND RESEARCH UTILISATION

There are many models which attempt to explain broadly how research might influence policy processes within the research utilisation literature (Nutley et al, 2000; Lomas & Brown 2009; Gold, 2009). Lomas and Brown (2009) provide a framework for understanding these models, by grouping them into four general categories based on the key features of each

model. The table on the following page outlines each of these groupings and their features, and builds on this to present specific themes around what each model suggests for research use in policy processes. The significance of linkages in supporting research utilisation is made overt in the interaction models, and implied for the "argumentation" models. Much less effort has been made to draw connections between linkages as a strategy for supporting research utilisation with rational actor or "messy" policy world type research use models in the literature to date.

Table 2 - Models that broadly explain research use in policymaking

MODEL	KEY FEATURES	RESEARCH USE IN POLICYMAKING
Rational actor stages models	Sequential stages of identifying options, assembling options, considering costs and benefits, before selecting an option and implementing it. (Jenkins, 1978; Dror, 1983; Hogwood & Gunn, 1990)	• Research is drawn on in relatively systematic ways to define policy problems, set agendas, develop and select options, implement and monitor policy solutions
Interaction models	Portray the policymaking process as one of an ongoing, prolonged interaction between and within competing interests, from which may emerge a feasible and acceptable policy. The more sustained and intense the interaction between users and researchers the more likely that there is to be research utilisation. (Caplan, 1979; Huberman, 1987; Sabatier & Jenkins-Smith, 1993; Lomas 2000; Lavis et al., 2002; Oh & Rich, 2006; Hanney, 2004; Davies et al, 2008)	• The nature of research evidence need for policymakers is diffuse – access to knowledge through trusted and ongoing relationships between policymakers and the research community is thus emphasised over specific pieces of work. Structures and processes that routinely link researchers with policymakers, either face-to-face, or through intermediaries such as knowledge brokers, are important tools for supporting research use.
Policy as "argumentation" models	These models highlight the importance of language in framing debates – and see all forms and sources of evidence as contestable. (Dobrow, Goel & Upshur, 2004; Gibbons et al, 1994; Greenhalgh & Russell, 2006; Russell et al, 2008) "*Policymaking is thus a rhetorical process in which power and persuasion combine within the available institutional structures to determine outcomes*." (Lomas & Brown, 2009, p916)	• Focus on communication as being a key conduit for research use in policymaking - but concentrate more on the channels for communication than the content.
Messy, constrained world of policymaking models	Policy making is a much messier, political and often incremental process than that suggested by rational models – emphasise frameworks such as Kingdon's (1984) "policy streams" or Cohen, March & Olsens's (1972) "garbage cans", and "windows of opportunity" often being drawn upon to explain how policy decisions are made in amongst the chaos.	• Research is relevant if it supports preferred solutions for problems of current significance - other research insights may be ignored. • Research can be drawn upon if circumstances or needs change – the "sleeper" effect (Whitehead et al, 2004) – research products form a "research reservoir" for policymaking (Hanney et al, 2003) • Policy use of research is most likely if research framing is in line with dominant political / popular narratives around policy issues of concern (Mead, 2015; Gamble & Stone, 2006)

"FUNCTIONAL" WAYS OF UNDERSTANDING RESEARCH UTILISATION

Some efforts to document more practically how researchers can and do add value to the policy process are also to be found in the research utilisation literature.

A recent example of this offered by an academic peak body, the British Academy (2008, p 20), illustrates the broad range of researcher activities and products that inform social policymaking and the ways in which researchers might actually contribute these to policymaking processes, including:

- monitoring and analysing social trends;
- providing independent scrutiny of government policy initiatives;
- devising solutions to help improve or refine policy responses;
- challenging current paradigms, helping to identify new approaches, concepts and principles around policy problems; and
- raising public awareness of key policy problems and associated issues;

The British Academy notes that researcher contributions to social policymaking are made in many ways, involving a variety of roles as experts, consultants and advisors, including:

- acting as government advisers;
- leading/contributing the work of standing committees and government enquiries;
- undertaking work to address specific policy questions – including carrying out modelling and evaluation activities;
- providing analyses of what works and what doesn't to government; and
- identifying and providing advice on strategies to enhance the effective delivery of public services.

These roles as experts, consultants and advisers all involve active linkage relationships between academics and policy officials.

Gold (2009, pp1119-1122) takes an alternative approach to understanding research utilisation, which involves identifying and bundling up specific, observed potential pathways for research use. These are outlined in the table on the following page.

Table 3 - Gold's (2009) Drivers and Pathways for Research Utilisation

DRIVER FOR RESEARCH UTILISATION	PATHWAY TO RESEARCH UPTAKE IN POLICY PROCESS
Research findings themselves drive use ("push")	• "Big bang" – single study – often published in influential journal and cited in major media, frames debate/issue in new ways and drives new initiatives • Gradual accumulation and diffusion – gradual, decentralised build-up of knowledge; no formal mechanisms of diffusion but policymakers become aware of/note evidence or interest groups introduce it to policy debates • Gradual accumulation and formal synthesis – structured syntheses summarising research are published or highlighted
Brokers/Intermediaries convert research to policy information	• Researchers as messenger – users consult "expert" – researchers interact and build relationships with policymakers • Formal intermediary-brokered translation • Press publicize and/or may generate their own research findings
User seeks to influence or enhance available research ("pull")	• User defines topics for synthesis of accumulated research • User participates in peer review of research proposals • User contracts research studies • Researcher as user – policymakers have research skills and undertake research

The broker/intermediary driver component of Gold's (2009) model, in particular, emphasises linkage relationships as an important component of the pathway for research uptake in policy processes.

Using a lens that focuses more on research use from a policymaker perspective, Lomas & Brown (2009) develop thinking from Gold's (2009) drivers and pathways model, by drawing on their research findings to begin to explore which drivers, pathways and activities are particularly important for supporting research use in the context of more specific policymaking tasks.

Lomas and Brown (2009) interviewed senior civil servants in policymaking divisions in the Ontario Ministry of Health about their evidence-informed decision-making activities. From these interviews they identified three broad policymaking tasks where research was drawn upon to better enable policymakers to do their jobs – agenda setting; developing new policies; monitoring and modifying existing policies. Research was considered useful to support agenda setting activities, as it can signal emerging or neglected areas that may need to be on the policy agenda, and it can validate or negate the issues claimed by interest groups to be worthy of inclusion. Research was deemed to be useful in informing the development of new policies, as it can reduce uncertainty around proposed policy directions, it helps to improve confidence when making recommendations (i.e. that they are "speaking truth to power"), it provides external validation for recommendations, and it may prevent duplication. Finally, research evidence was regarded as important in monitoring or modifying existing policies, because it is capable of directly informing ongoing program improvement, and it creates a "currency of accountability" (Lomas & Brown, 2009, p918).

Lomas & Brown (2009) then noted that the nature of the functional relationship between civil servants and research evidence was contextually different across the policymaking task areas. For example, agenda setting evidence was most likely to be "pushed" at the civil servants by interest groups, who endeavoured to claim priority for their policy issue or concern. As Lomas & Brown (2009, pp919-920) highlight, "In this area, research is often considered just another element clamouring for attention; it is seen useful only if it can help to screen out all but the most pressing issues through the rebuttal of claims, a task most often performed by civil servants themselves rather/ than external researchers". Civil servants, however, reported being far more likely to demand new research in the process of creating new policies, with this being gathered to inform or "buttress" specific policy

recommendations. The degree to which research evidence can be readily applied and/or user friendly were highly important characteristics for the uptake of evidence to this end. Finally, the civil servants were also found to be more likely to seek research evidence in monitoring or modifying policy activities. However, the functional relationship between the civil servant and research evidence was far more likely to be reported as an ongoing versus a periodic one. The policy officials in policy monitoring and modifying roles were thus more likely to need to create an ongoing relationship with evidence, requiring more protracted linkage and exchange relationships with researchers and their products. Key foci for such linkage and exchange relationships are developing a trust relationship with the sources of evidence, helping researchers to understand the policy context, using the research as part of their own learning, as well as discharging their specific policymaking work responsibilities.

Lomas & Brown's (2009) study, in focusing on research use more from both a functional and a policy perspective, suggests that nuances in policy research use mean that linkage strategies that seek to enhance research use need to be tailored to their context in order to produce desired outcomes. However, studies that adopt a more fine-grained functional focus for understanding research use have seldom been undertaken.

The chapter now moves on to outlining a number of key theories prominent in the research utilisation literature that have relevance for understanding the role and influence of linkages in policy processes.

THEORIES THAT HIGHLIGHT LINKAGES FOR RESEARCH USE IN POLICYMAKING

There are a number of other key theories that can be found within the research utilisation literature that highlight the significance of linkages in policymaking processes, and in doings so imply other important functions for linkages in supporting research use. In terms of understanding the importance of the different theories that explain linkages that are presented below, it is helpful to understand them in the context of the development of research utilisation theory more broadly[4]. Theoretical frameworks such as the "two communities" were considered most significant when "push"/"pull" or "supply" and "demand" processes were emphasised in early research utilisation theory. The new "policy" focus that came with the 1990's saw theories from political studies and organisational theory being

[4] A number of phases in research utilisation theory development were briefly presented by way of context setting in Chapter 1.

drawn on increasingly to understand research utilisation. The most recent wave of research utilisation theory development, which frames research use as "knowledge mobilisation", draws more on diffusion of innovations, communications and organisational theory bases – thereby emphasising social networks, absorptive capacity and the social processing of knowledge.

Cultural dissonance – "two communities" theory

Central to the "two communities" theory is the assumption that the non-use of research stems from cultural differences – or dissonance – between research user and producer communities. Policymakers and researchers are considered to "live in separate worlds, with different and often conflicting values, different reward systems, and different languages" (Caplan, 1979, p459; Wingens, 1990; Dunn, 1980; Shonkoff, 2000; Brownson et al, 2006; Bogenschneider & Corbett, 2010, Mead, 2015).

Efforts have been made to identify the specific dimensions of the cultures of each of the communities where tensions arise, and which can then act as barriers to the uptake of research in the policy process. Dunn's (1980) five domains of culture is one such example, and provides a framework for a more refined understanding of the "cultural" differences at the heart of "two communities". These five domains are outlined in the table on the following page – together with some illustrative examples of cultural differences commonly identified as explanations for the under-use of research for each domain[5].

[5] The examples of cultural differences that are presented in the table outlining Dunn's domains of culture are drawn from Table 1 – "Accounting for the underutilisation of research in policymaking", which summarises conceptual explanations for the under-use of research in policymaking identified in the literature.

Table 4 - Dunn's (1980) Five Domains of Culture

DOMAIN	DOMAIN DESCRIPTION	EXAMPLE OF ACADEMIC VS POLICYMAKER CULTURAL DIFFERENCE
Products	The types of outputs that are prioritised and pursued	*Academic*: the discovery of knowledge – resulting in research products that can be published; academics prioritise writing for academic audiences *Policymaker*: distinct policy solutions or approaches that are both practical and politically acceptable
Inquiry	The methods of inquiry typically used; the nature of strategies for deciding what is true or not that are adopted	*Academic*: rigorous and theoretically sound scientific methods – can be time consuming *Policymaker*: values, interests and tacit perspectives not always best captured via scientific research methods; need to prioritise efficient strategies (as these best support quick policy responses)
Problems	The range of issues and challenges that are the focus of attention	*Academic*: prefer distinct, definable problems with agreed and achievable outcomes *Policymaker*: social problems are not always commonly understood; desired outcomes are not always agreed
Structure	The distinct governance arrangements, authority patterns, power and incentive systems, etc. which shape institutional/professional environments	*Academic*: incentives strongly shaped by institutional performance measures (e.g. publication targets) and need to maintain strong professional reputation *Policymaker*: institutional environments prioritise need to respond to political and practical imperatives associated with policymaking
Process	The priorities, unique work demands etc. that shape day-to-day focus for attention and activities	*Academic*: the need to complete research with rigid adherence to scientific standards in order to publish is of high importance *Policymaker*: focus of attention can shift rapidly reflecting shift in stakeholder concerns and interests; political need to be pragmatic/compromise

The cultural dissonance perspective has historically been dominant in the literature and has frequently found its way into the public dialogue around the barriers and frustrations associated with the pursuit of EBP (Gibson, 2004; Edwards, 2005; Ross, 2011; Shergold, 2011).

According to the "two communities" theory, interaction between the two groups can help them better understand each other's worlds, help to build a common language, and thus support knowledge transfer (Shonkoff, 2000; Lavis et al., 2002; Ward et al., 2009a). For this interaction to be effective Caplan (1978) suggests that the relationship should involve value and ideological dimensions as well as technical ones, and that interaction should be tailored to reflect the different ways in which research can influence policy decisions.

There is a significant amount of research evidence that would tend to provide some support for the "two communities" thesis. This research evidence is largely found in "factor" type studies, which have endeavoured to identify the barriers and facilitators to research utilisation in policy contexts via survey and/or interview methodologies.[6]

"Two communities" is a theoretical framework that has been challenged and is consequently evolving. At the very heart of debate is the notion of "two communities", with many authors arguing that these are not as simple, homogenous and distinct as the framework implies (Newman & Head, 2015; Newman et al, 2016; Orr & Bennett, 2012; Bogensneider & Corbett, 2010; Jacobson, 2007; Shonkoff, 2000; Wingens, 1990). Authors who have contributed to the framework's development over time have made various efforts to better capture these complexities. For example, Shonkoff (2000) suggested that "two communities" understandings of the barriers to use of research in policy making and implementation should actually be referred to as "three communities – with these being made up of science, policy and practice communities. Bogenschneider & Corbett (2010) suggest that a distinction needs to be made between policymakers (political members and staff) and policy administrators (policy bureaucrats), as these groups do not operate as a homogenous "policy" community. Further, drawing on their cluster analysis work, they suggest that amongst both of these groups there are identifiable differences in "types" of research users,

[6] Examples of cultural differences presented in Table 3 (which outlines Dunn's domains of culture) on the previous page, also feature as key barrier "factors" identified via empirical research included in Table 4, presented later in the chapter.

thus also challenging the notion of a homogenous community.[7] So more nuanced conceptions of the associated "communities" are being developed, with some suggesting that it might be more helpful to conceptualise these communities along a spectrum of interaction, with some overlaps, rather than as operating in separate spheres (Newman & Head, 2015).

The linkage and exchange model

The "linkage and exchange" model for research use is derived directly from "two communities" theory around the key barriers to research utilisation. The model conceptualises the flow of knowledge from researchers to users as an interactive process, where academic researchers and users develop knowledge together to identify, understand and solve policy problems (Lomas, 2000). Regular interaction between funders, managers, researchers and policy-makers is required to set up a process of ongoing information exchange. Effective interactions are seen as important to overcoming the differences in cultural values and beliefs between researchers and non-academic end-users of research, which can create the barriers to research transfer and uptake. This theory highlights the opportunities created via effective interaction between research suppliers and non-academic end-users. Research and policy are both considered processes not products – linkage and exchange connects these processes.

The organisational dimension to knowledge use

Organisational explanations for the under use of research have been a consistent theme in the research utilisation literature, with these emphasising institutional and organisational cultural factors that act as barriers to research use, or highlighting the existence or lack of specific capacities required to access and process research evidence effectively. Institutional and organisational culture characteristics are frequently highlighted and addressed via two communities conceptions of research utilisation. The issue of capacity is most often explored by alluding to work around the absorptive capacity framework found in organisational management literature. The absorptive capacity framework has been

[7] Bogenschneider & Corbett (2010, p143) identified found four broad clusters of research users – Cluster 1 - "enthusiastic users" (significantly higher scores across scales measuring valuing, access and use of research by policymakers); Cluster 2 - "sceptical users" (value research less, but higher scores on access and use than clusters 3 & 4); Cluster 3 - "enthusiastic nonusers" (value research highly, but lower scores on access and use than "sceptical users"); Cluster 4 - "sceptical nonusers" (low scores across all scales).

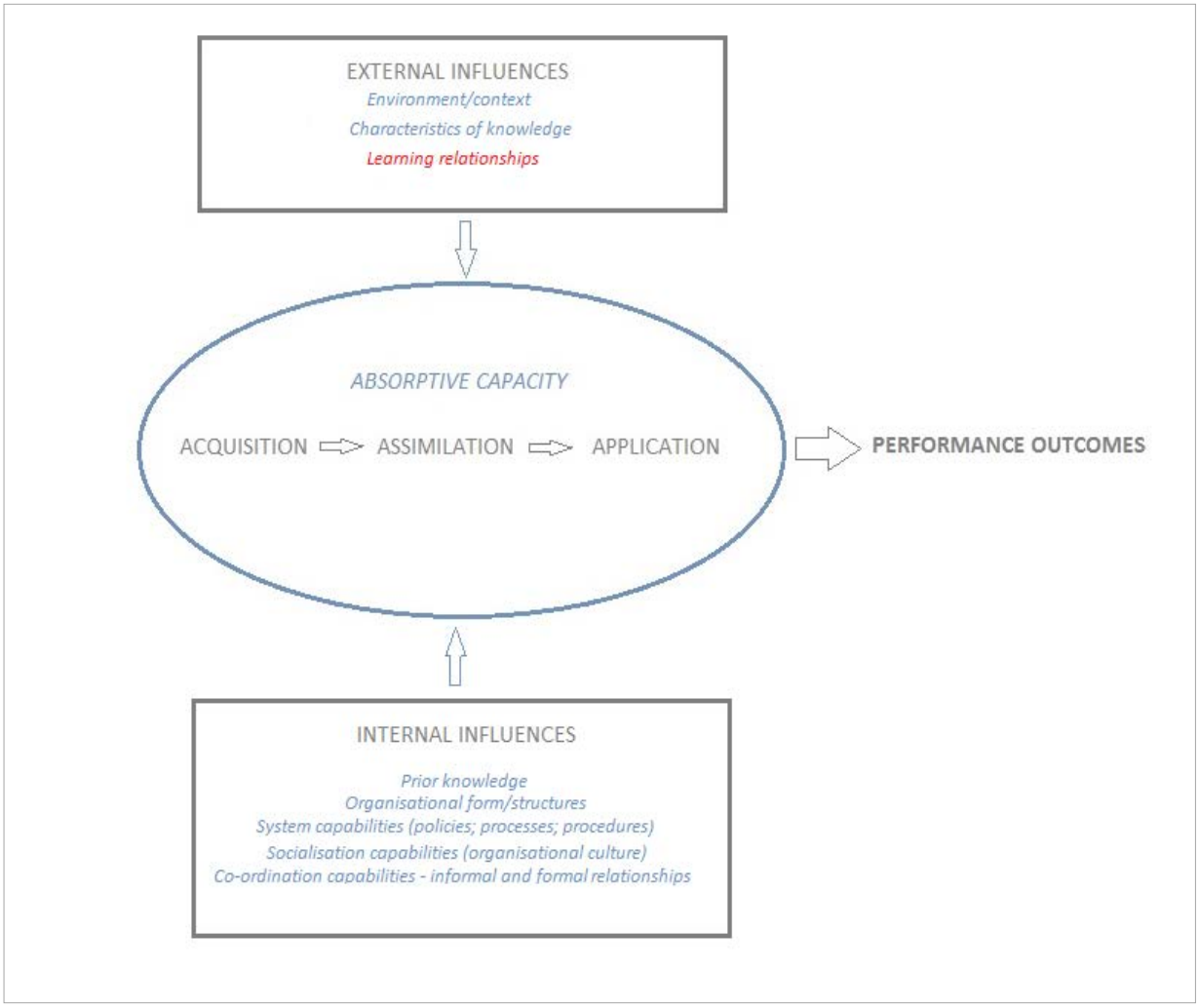
developed there as a tool for understanding how organisations take on new knowledge and use it to enhance their performance.

Absorptive capacity is a concept that has been predominantly developed and explored in the context of the private sector. Application of the concept in more systematic ways in public sector contexts to support the exploration of research use has only recently been suggested (Harvey et al, 2010).

The term was first employed by Cohen and Levinthal (1990), who then defined it as a firm's ability to identify, value, assimilate and exploit knowledge from its environment. Cohen and Levinthal (1990) suggest that the ability to evaluate and use outside knowledge is largely a function of individual members' prior related knowledge and experience. However, absorptive capacity is also dependent on organisational level characteristics such as the degree to which new external knowledge is valued within an agency, the extent and nature of shared language, the existence of structures of communication with the external environment and the character and distribution of expertise across the organisation – as these factors shape how new knowledge is assimilated and exploited. At an organisational level they note that the acquisition of new knowledge tends to be mediated by individuals who take on roles as gate-keepers and/or boundary-spanners. As existing research knowledge and expertise shapes capacity to take on new research knowledge, absorptive capacity is viewed as an outcome of experience and prior learning within particular organisational settings, with this influenced by internal and external processes (Cohen & Levinthal, 1990). Cohen and Levinthal's model has since been elaborated on. Contributions by Van den Bosch et al (1999), Zahara & George (2002), and Lane et al (2006) in particular, highlight the complexity and stages of knowledge use (involving acquisition, assimilation, transformation and exploitation levels of use) and articulate the contextual, organisational and individual influences that shape absorptive capacity in more detail. Internal processes, such as activation triggers and social integration mechanisms which aid the movement of knowledge within the firm are also noted (Van den Bosch et al, 1999; Zahara & George, 2002).

A schematic diagram for this theoretical framework is presented on the following page.

Figure 2 - Absorptive Capacity Schematic Diagram



Within this diagram linkages are only really represented in one way – they are the "learning relationships" that principally provide a pathway for knowledge to enter the organisation. However, efforts to further explore and develop the basic framework over time have revealed that relationships are drawn upon in other key ways to enhance an organisation's absorptive capacity – and also have identified some of the facilitators or barriers to these relationships.

Jones (2006), drawing on their empirical research in a business context, identified the existence of key individuals playing "gatekeeper" roles bringing in new ideas from outside – and in doing so acting as "boundary spanners". Further, Jones (2006) suggested that individual agency is an important process of ACAP – organisations don't just absorb knowledge via an undirected process of osmosis, but that key individuals can play a highly influential role in strategically shaping the types of knowledge an organisation will deem

relevant to achieving performance outcomes. This type of thinking reflects the notion of "entrepreneurs" or "brokers" for research use in policymaking.

Easterby-Smith et al (2008) draw on research findings to further develop an organisationally-framed understanding of linkages and research utilisation. Their research involved a case study approach with three different types of large organisations, including a public sector health organisation in the UK.

Easterby-Smith et al (2008) noted how external access to new information is highly influenced by the extent that individuals are placed in roles that legitimise external interactions. However, they found that an organisation's internal appreciation and use of such knowledge depended mostly on more episodic sources of power. These sources of power were situational, and typically stemmed from changes that provided new opportunities or a "crisis" that demanded a new response. Episodic power was then used to establish structures and roles that provided systemic power to continue to build access to new knowledge in the organisation. This results in an observable process in organisations by which they improve their linkage-related absorptive capacity - a specific initiative (or a "window of opportunity") sparks the use of a new source of knowledge, the processes around this are then formalised and, in doing so, the organisation improves its ability to benefit from interactions with its external environment over time. These processes are driven by individual agency – taking place as the result of specific efforts by managers or other stakeholders with an ability to span boundaries.

Easterby-Smith et al (2008) also observed an evolution in the approach to knowledge transfer in the organisation's they studied. Citing the work of Carlile (2002; 2004), they identified three broad approaches to knowledge transfer used by the organisations they studied. The first, and most basic approach, is referred to as "syntactic", and involves the transfer of data through information technology. The second approach, referred to as the "semantic" approach, highlights the focus on the use of language to create shared meanings and "translate" knowledge. The third approach, referred to as the "pragmatic" approach, focuses on how knowledge is transformed "through political efforts and the negotiation of practices" (Easterby-Smith et al, 2008, p497). In all three of the organisations that they used as case studies they were able to identify a progression from syntactic, to semantic and ultimately to pragmatic forms of communication with their external knowledge sources over time. Each of these approaches to communication built on the other, improving the ability

of the organisation to benefit from its interactions with its external environment, and thus increase its "absorptive repertoire". Finally, Easterby-Smith et al (2008) concluded that the pragmatic approach, in particular, was underpinned by specific initiatives of proactive managers or key stakeholders exercising episodic power, and with the ability to span the organisation's boundaries effectively.

In summary, absorptive capacity has developed as a construct which provides a specific framework for understanding how organisations take on and use new knowledge. It draws attention to the need to appreciate and acquire new knowledge from the external environment, whilst simultaneously focusing on internal processes of learning from past experience and current actions. To date, little attention has been paid to the application of this framework to public sector organisations. However, recent work by Easterby-Smith et al (2008) in particular suggests a number of key specific factors and processes that might better inform the use of research in policymaking from an organisational perspective, and contribute to a fuller understanding of how linkages are drawn upon to support research impact.

Networks and knowledge use

There are a range of network-related theory bases (and related network concepts) in the research utilisation literature, but policy network and social network theories are ones that have most frequently been drawn on a significant way to understand the role of linkages in research sharing and use. For these network-related theories, networks consist of a set of actors who are linked by some form of relationship and have boundaries that delineate the network and give it an identity (Diani, 2003). Thus, linkages are an inherent aspect of network theories.

Policy networks are made up of individuals and organisations engaged in a policy sector, and can involve a wide range of actors including organisations, professional networks, community groups or individual stakeholders. The literature around policy networks mostly concentrates on functional approaches to understanding how such interest groups control or influence policy processes. Connections for these networks are not necessarily based on trust and co-operation, but policy-related interests and some shared understanding of policy paradigms and language. While relationships are an implied aspect of policy networks, an understanding of the array of formal and informal connections between individuals and groups is not a core focus. Instead policy network analysis focuses more

broadly on identifying common and competing policy interests, recognising shared activities and resources and understanding relative power and influence within networks (Considine et al, 2009; Lewis, 2006). Policy networks are relevant to this project because this theory base highlights how relationships between groups inherently provide the basis for policy influence. These relationships, which may involve an array of different types of personal and/or structural connections, denote the ways in which interests are organised and/or combined to make a contribution to policy processes. An application of policy network frameworks, as such, is most useful at a conceptual level for understanding how linkages might relate to the more political elements of policy processes.

The social network literature, on the other hand, focuses on interpersonal ties between individuals. It is this theory base, which provides the frameworks and tools for network analysis that is drawn upon to understand particular patterns of communication or relationships between key actors within policy networks. It has been drawn upon, in particular, in endeavouring to understand the diffusion of knowledge to inform innovation in organisations, including innovation within the public sector.

Social network ties can be single or multiple, and may differ in terms of direction, content, intensity and strength. They don't necessarily involve like-mindedness or trust – but they may be stronger where these are identified. Within the literature, the boundaries for these groups can be both conceptually constructed to serve a research or analysis purpose (typically when adopting a network approach to theorising about influence in relational terms in a context) or include only those who are actually connected to each other somehow (as an outcome of an actual network analysis activity).

A key approach involving social network theory evident in discussion of innovation in policy contexts (with research utilisation being a conceptualised as a central task to innovation) involves the use of network ideas in thinking about social capital. Lin (2001, p25) defines social capital as "the resources embedded in social networks accessed and used by actors for actions". The network approach to social capital highlights how social relations, actor connections and access to network resources contribute to the capacity for innovation. It also suggests an interplay between individual and organisational attributes and the structural properties of networks. Organisational actor attributes such as size and culture, for example, will shape how outward-looking and how inter-connected individuals are within the organisation – all having consequences for their capacity to network and take advantage of

the opportunities and resources derived from networking (Considine et al, 2009). In line with a network view of social capital, actors within networks are therefore able to wield influence shaped by organisational resources (with the organisation having power, recognised roles and a reputation itself), by their own personal resources (such as education, skills, charisma) or because they have ties to others who have important resources (Lewis, 2006). In this way, capacity notions also feature within the network theories drawn upon to understand policymaking processes. As Considine et al 1998, p188) highlight "Mapping communication to find out where information is obtained and traded, and where advice is sought, provides the possibility of explaining the impact of traditional forms of hierarchical interaction, as well as the more lateral and informal links which seem to be just as important for innovation."

Social networks thus are not only pathways for knowledge, but serve as "bridges" between different parts of a network that help to access essential resources. In this sense, they have most often been drawn upon to inform the specific ways in which knowledge is acquired by organisations, in a context of understanding their capacity for research utilisation and innovation.[8]

RESEARCH UTILISATION AS A SOCIAL PROCESS – MOBILISING KNOWLEDGE

Each of the theory bases presented above are drawn upon in developing the most recent wave in the evolution of understanding research utilisation in policymaking. Efforts to address some of the criticisms around the simplicity of dominant supply and demand framework models have, in been part, been the impetus of a focus on knowledge mobilisation processes in policymaking research use. Knowledge mobilisation integrates strands of theory from sociology, political science, organisational management, as well as social psychology. Interactive approaches to the transfer of knowledge still feature, but are progressed with themes around new modes of knowledge, diffusion of innovations, entrepreneurship, leadership and knowledge brokering (Oliver et al, 2014; Caswill & Lyall, 2013). Research use from these perspectives is interactive, iterative and contextual, emphasising the social, ideological and interpretive ways of knowing. Research use is seen

[8] A review of the literature enabled only a handful of linkage-specific empirical studies focusing on social networks to be unearthed - these studies adopt more of an organisational perspective to the use of knowledge, and focus less on cultural dissonance as a barrier to research use. More specifically, social networks are explored as an important way in which knowledge enters and is used by members of an organisation to "innovate".

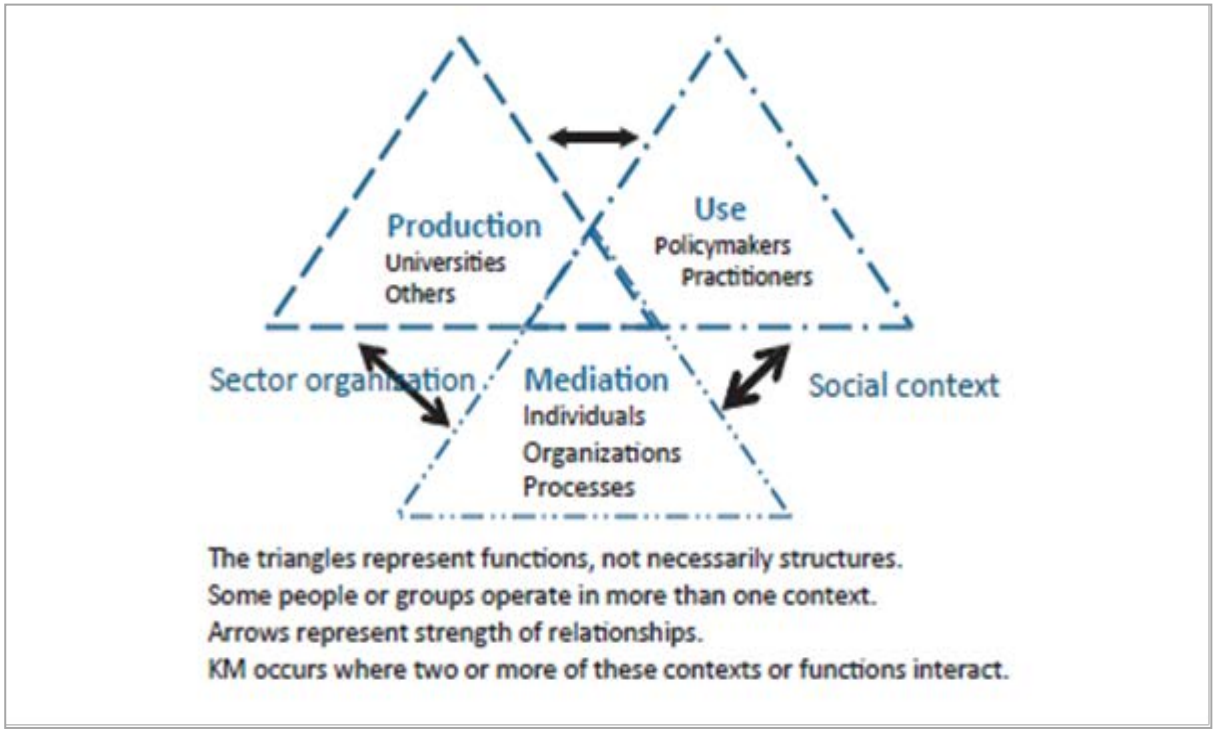
as an ongoing, creative and unfolding process, created through social interaction "in situ". (Nutley et al., 2007; Davies et al, 2008; Walter et al, 2009; Levin, 2013; Moss, 2013) Further, as Moss (2013, p2) highlights, "…knowledge mobilisation is not just about moving a clearly defined set of ideas, concepts, research techniques or information from here to there. Rather it is about grappling with which forms of knowledge are apt in which contexts and how they can be strengthened through use."

Knowledge mobilisation highlights how research evidence products are socially processed and related to their context for use via interactions between policymakers, researchers and other key stakeholders. Relationships are highlighted as playing a key role in supporting the co-production of research evidence, such that research framing is in line with dominant or popular political narratives around policy issues of concern. Further, social exchanges between policymakers, researchers and other stakeholders support the development of understandings of research, such that it is transformed from research "products" to integrated, shared knowledge. These processes enhance the relevance of research in policy processes, thereby best supporting the impact of research. The role of "entrepreneurs" – individuals or organisations - with specialist expertise around producing and/or supporting the uptake of policy-relevant research is particularly identified and emphasised in the context of this process view of research utilisation (Nutley et al., 2007; Mitton et al, 2007; Davies et al, 2008; Walter et al, 2009; Levin, 2013; Moss, 2013; Caswill & Lyall, 2013)

Levin (2011; 2013) offers a conceptual framework for understanding the more complex nature of knowledge mobilisation. It attempts to represent all the major dimensions associated with research mobilisation, and draws particular attention to the contexts in which it takes place. These contexts are the research production context, the "use" context, and the third is a mediation context which is made up of all of those individuals and organisations (such as think tanks, lobby groups, the media, professional associations, "entrepreneurs") who may in some way make attempts to connect research with policy or practice. These contexts are conceptually represented as overlapping, as particular individuals or institutions can fit into more than one of the contexts at the same time. For example, researchers can act as intermediaries or brokers of knowledge, or a user may actually be involved in the active production of research. A range of organisational and personal connections of varying intensity also connect the three contexts, as represented by the arrows in the diagram below. Finally, the entire process of knowledge mobilisation, and all of the actors within it, are

influenced by a broader social and political context that is shaped by influences such as values, ideas and existing policies and practices. Levin's conceptual framework for knowledge mobilisation is illustrated in the figure below.

Figure 3 - Levin's Conceptual Framework for Knowledge Mobilisation[9]



The practice of knowledge brokering – which can be conceptualised as a specialised form of linkage relationship - flows from the identification and emphasis on "entrepreneurs" with specialist expertise for supporting the uptake of policy-relevant research within knowledge mobilisation frameworks – but also has roots in two communities and linkage and exchange conceptualisations of research utilisation. Knowledge brokering is, perhaps best defined by Lomas (2007, p3) as 'all the activities that link decision-makers with researchers, facilitating their interactions so that they are able to better understand each other's goals and professional cultures, influence each other's work, forge new partnerships and promote the use of research-based evidence in decision-making'. The scope of knowledge brokering can range from individuals to groups or organisations (Robeson 2008). Knowledge brokers

[9] Framework diagram presented in both Levin (2011, p17) and Levin (2013, p9)

can be – and often are - policymakers or academics themselves. They can also be third party individuals or organisations.

Knowledge brokering roles or functions are often referred to in the literature using a range of alternative terms - these include intermediaries (Levin, 2004; Sin, 2008), policy entrepreneurs (Edwards 2004), boundary spanner (Ward et al, 2009a), research translators (Ward et al 2009a), champions (Cherney & Head, 2010), boundary objects (Kimble et al, 2010), liaison officers (Tetroe et al, 2008), third space professionals (Whitchurch, 2009), innovation broker (Horne 2008), boundary organisations (Crona & Parker, 2011), diffusion fellows (Rowley, 2012), and knowledge exchange professionals (Knight & Lightowler, 2010).

Several common elements of knowledge brokering can be identified across the literature. Firstly, knowledge brokering must have a human element. Secondly, this human element underpins interactive processes of knowledge co-production and transfer between academic researchers and policy-makers. Thirdly, these interactive processes are typically considered to involve three specific purposes - "bridging" diverse academic and policymaker communities, supporting the social processing of knowledge, and capacity-building – with these all being instrumental in enhancing research impact in policy processes (Lomas, 2007; Ward et al, 2009a; Ward et al, 2009b, Dobbins et al, 2009a; Meyer, 2010; Knight & Lyall, 2013; Bornbaum et al, 2015)

It is only in relatively recent times that knowledge brokering roles have been structured and formalised into specialised professional positions and/ or organisational functions (CHSRF 2003). Despite the formalisation of knowledge brokering roles though, informal knowledge brokering activities and roles continue to flourish, both within formalised organisations and informally across a wide range of individuals and organisations. The greater flexibility associated with informal brokering strategies may in part explain why they may be more significant than formal means for supporting research impact (Faulkner & Senker, 1995 in Meagher et al, 2008).

Knowledge mobilisation conceptions of research use in the policy process, and knowledge brokering as a specific linkage strategy within this, emphasise both interaction and policy as "argumentation" model explanations of research utilisation in policymaking. However, by highlighting the significance of "entrepreneurs" in policy processes and the importance of (and strategies for) framing research around prevailing policy narratives, these approaches

are also begin to suggest ways in which linkages may support research use in the context of "messy" policymaking worlds understandings of the influence of research in policymaking.

The chapter will now provide an overview of key empirical findings pertaining to linkages and their significance for research utilisation.

THE EVIDENCE-BASE FOR LINKAGES

Linkages have seldom been the specific focus of research utilisation research efforts.[10] This means that little has been documented about how linkages influence research uptake in policymaking contexts, what shapes them, or the scope of their influence. As Ouimet et al (2010, p433) highlight: "Opinion leaders have promoted the building of linkages between researchers and policymakers to support research use (e.g. Lomas 2000), and the utilisation of knowledge brokers has been suggested in order to make up for the lack of direct communication between researchers and policymakers (e.g. Lomas 2000, Dobbins et al., 2009a & 2009b). It follows that one of the main hypotheses in this field of study is that *direct interactions with academic researchers are the most significant correlate of research utilisation by policy makers…..* Curiously this hypothesis has rarely been tested in 'large N' empirical studies, which are somewhat rare in the field."

Most of the linkage-related research results referred to in the literature are from broader "factor" studies that identify barriers or facilitators to research use in policymaking processes. Further, contracted relationships are often the implied linkage type when considering the impact of research in policy contexts.

There are only a small number of studies that have a dedicated focus on linkages, with these typically involving mixed methodologies (i.e. combinations of case study/interview/survey methodologies) and/or network analyses of some description (typically efforts to map specific relationships in order to understand their influence). Of particular note are those studies recently undertaken by Haynes et al which focus on policymakers' use of researchers as opposed to research (2011a) and the strategies that academics adopt to

[10] It was beyond the scope of this thesis to undertake a systemic review of empirical studies pertaining to linkages. Instead a snowballing technique was used – drawing on references from previous broader systemic reviews, references from published papers with a relevant theoretical focus, and references from recently published studies identified via publication database searches.

connect their research with policymakers (2011b) – both thus emphasising and exploring linkages in a much more focused way.

It is important to be aware that research efforts reported right across the research utilisation literature, as well as many of the more linkage-specific studies, have been subject to a number of common methodological weaknesses. In summary, the following key issues have been identified:

- Currently there is also no universally accepted/adopted model for measuring the utilisation of research. (Lester, 1993; Oh & Rich, 1996; Ouimet et al, 2010; Smith et al, 2011) As highlighted in chapter one, there are many ways that research utilisation can be understood. While there have been some efforts to develop a standardised tool for measuring research utilisation – most notably Knott and Wildavsky's (1980) scale, which incorporates instrumental, conceptual and symbolic uses of research – such tools have not been widely employed to date. Lack of a standardised measure makes it difficult to compare findings across studies.
- Most studies draw on interview or survey research tools that rely on self-reporting research methods, with very few using methods that might map the influential factors and processes believed to shape research use, or identify research utilisation outcomes, in more rigorously objective ways[11] (Oliver et al, 2014; Mitton et al, 2007).
- A large number of studies focus on collecting either researcher or policymaker perceptions of the barriers and facilitators to evidence uptake – and adopt a "factor" approach to portraying these findings. Few have had a substantial focus on considering when and why different factors come into play in policymaking processes, or how factors may be inter-related (Oliver et al, 2014)
- Research utilisation studies that have drawn on policymaker perspectives have tended to lack clarity about who policymakers are. Some have drawn on the perspectives of political decision-makers and advisors, others on those in administrative roles, and a small number have captured both groups. However, as Page (2012) and Newman (2014) highlight, the roles of these groups are vastly different and this is likely to have implications for both their research needs and their

[11] For example, observational methods; case evaluations of "real world applications" of a strategy to enhance research impact; or in a context of exploring linkages, the use of network analyses.

uses of research. Further, Ouimet et al. (2010) suggests that clarity about who a policymaker is, even when focusing solely on those in administrative roles, may be important - as a focus on those only with managerial or formalised decision-making functions may mean the perspectives of those who actually find, collate and disseminate research-based policy advice may not be captured. At the very least, the absence of consistent approaches to defining and drawing on the views of policymakers makes comparison of findings across empirical studies more challenging.

I will now briefly outline empirical research to date. I first present an overview of barriers and facilitators to research utilisation captured by many of the larger studies – which contextualises linkages as a facilitating "factor" amongst other factors. I then outline more specific linkage-related research findings – although it is important to note that some of these findings may only be drawn from one or two specific studies to date. In this way a picture of what is known about linkages is drawn, providing a fuller context for understanding linkage-related research findings for this project.

Barrier and facilitators to research utilisation identified via empirical studies

A large number of research studies have been undertaken – predominantly applying survey and interview methodologies with either research producers or policymakers (public servants and/or elected officials), and some with larger sample sizes than others - to identify what appears to predict research use by policymakers (for example, Huberman, 1990; Landry et al, 2001a; Kothari et al, 2009; Bogenschneider & Corbett, 2010; Cherney & McGee, 2011; Haynes et al 2011a and 2011b). Few of the studies reviewed seem to have explored the processes around identified characteristics or issues – instead presenting them more as "factors" that act as "barriers" or "facilitators" to research utilisation. The table on the following pages presents barrier and facilitator factors widely reported in the literature, drawing on the studies identified above as well as the outcomes of a number of systematic reviews/syntheses of literature outlining the findings of empirical research (Beyer & Harrison, 1982; Innvaer, 2002; Helmsley-Brown, 2004; Mitton et al, 2007; Orton et al, 2011; Oliver et al, 2014).

Table 5 - Barriers and Facilitators to Research Utilisation

	IDENTIFIED BARRIERS TO RESEARCH UTILISATION
Policy context/process	• Policy characteristics – complexity of the policy area; competing pressures in the policy area (economic, political, social, and cultural) • Media, vested interest and pressure/lobby groups; consumer-related barriers • Poor long term policy planning inflexible and non-transparent policy processes • Power and budget struggles • Lack of professional bodies; professional bodies that are political/biased; professional bodies who do not provide useful guidelines
Differences between researcher and policymaker communities	• Policymakers and their motivations are not well understood (researcher perspective) • Mutual mistrust between policy-makers and researchers • Differences in language • Different priorities between researchers and policymakers • Differences in expectations around timeframes/Lack of timely research output • The "gap" between researchers and users (differences in professional goals; incentives/rewards; perspectives)
Need for additional/better knowledge and skills	• Researchers lack familiarity with the policy making process • Policymakers' lack of research skills and awareness; beliefs, personal experiences, judgments, values about the usefulness of research
Valuing research evidence in the policy process	• Decision-makers' perceptions of research evidence – research evidence not valued/considered important • Culture, structure and resourcing of organisation of research user (degree of centralisation and formalisation; nature of internal communication networks; number and types of boundary spanning roles; time and facilities available; culture – particularly the value organisations place on research and its use; lack of managerial support and will, material and personnel resources; staff turnover); • Political instability or high turnover of policy making staff
Credibility	• Credibility of research and/or researcher not adequately established
Linkages	• Absence of personal contact between policymakers and researchers

Nature of research available	• Poor quality of research • Relevance of research
Accessibility of research	• Accessibility of research (publication in academic journals; style and focus of research for academic audiences; volume, applicability and ambiguity of available research) • Poor access to research within organisation
	IDENTIFIED FACILITATORS FOR RESEARCH UTILISATION
Characteristics of research producers and users	• Characteristics of researchers – having a good understanding of the policy process; having a good understanding of the context surrounding policy priorities; non-partisan and producers of non-biased results; providers of expert advice (as well as research products); credible • Characteristics of policymakers - research skills and awareness; beliefs, personal experiences, judgements, values about the usefulness of research
Valuing research evidence in the policy process	• Leadership and authority (that is supportive of research use in policy context) – managerial support; organisational culture
Linkages	• Collaborative approaches; partnerships • Linkages – involving personal contact between researchers & policymakers; continued over time • Knowledge brokers/knowledge brokering strategies • Policy entrepreneurialism or policy champions
Nature of research available	• Characteristics of research – clarity, relevance, reliability; format/presentation (findings easily accessible and understood to users); quality; authoritativeness; actionable findings
Accessibility of research	• Research is available and accessible • Effective dissemination of research

Linkage-specific research insights

The mechanisms that link researchers and policymakers – particularly those involving personal contact between researchers and policymakers – are one of the most frequently reported facilitators reported in studies exploring research utilisation, and have been identified as being a very good predictor of research use (Dunn, 1980; Beyer & Harrison, 1982; Bogenschneider et al, 2000; Lomas, 2000; Innvaer et al, 2002; Landry et al 2001a and 2003; Jacobson et al, 2003; Helmsley-Brown, 2004; Waddell et al, 2005; Mitton, et al, 2007; Nutley et al, 2007; Meagher et al, 2008; Lavis, 2010; Cherney & McGee, 2011; Buckley et al, 2014; Oliver et al, 2014; Sá & Hamlin, 2015).

The personal nature of linkages is both highlighted and explained by a number of studies, which suggest that they are a mechanism for knowledge mobilisation. For example, Haynes et al.'s (2011a) study highlights how policymakers used researchers as an adjunct to published research – with linkage relationships focusing on personal dialogues that enabled research to be tailored to changing policy environments. Bogeschneider & Corbett (2010), in outlining key findings drawn from in-depth interviews with a number of academics, highlight how the academics conceptualised their policy focused work as developing relationships with policymakers versus simply disseminating information to them.

Haynes et al (2011a) however, in a study that specifically explored linkage relationships between policymakers and researchers, identified that not all relationships needed to be close and personal all of the time for research use to be facilitated. For example, a number of the policymakers they interviewed considered that the reputation and credibility of a researcher could be sufficient assurance of the quality of their research products. Further, linkages at an agency level could be less dependent on one-to-one personal relationships, where these are managed by formalised agreements or "institutionalised interagency". The policymakers reporting this cited long-term productive relationships between their departments and particular universities/research centres as evidence of this – with such linkages often spanning several generations of staff turnover in both organisations. While their linkages may have required more personal interaction as part of their establishment, this was less important once established.

These broad linkage themes are detailed further below – and a number of other empirically derived linkage-related insights are also outlined.

The quality of linkages is critical – quality is shaped by "trust" and "mutual respect"

Oliver et al, (2014) and Mitton et al, (2007), both drawing on systemic reviews of numerous empirical research efforts, highlight that the quality of these researcher-policymaker relationships is central to their significance. Trust and mutual respect, are specific "quality" characteristics highlighted by these authors.

Many research projects report that quality relationships take time to build, and there are a number of significant barriers to this (Cousins & Simon, 1996; Innvaer, 2002; Mitton et al, 2007; Oliver et al, 2014). For example, academic researchers interviewed by Kothari et al, (2009) indicated that the nature of working with government, which is typically characterised by short funding cycles, a crisis orientation towards policy work, and frequent turnover in staff, is inherently at odds with investing the time required to build mutual trust and understanding, and the kinds of communication that support quality relationship-building.

Linkage types

It is often noted in the literature that a range of different types of linkage relationships influence research transfer and uptake - ranging from hands-off models to intense collaborations (Nutley et al, 2007; Ross et al 2003) - but very little work has in fact been undertaken to empirically map these different models or relationship forms, or to consider the ways in which specific forms might influence research uptake.

Informal versus formal relationships

There is some evidence to suggest that linkage relationships can usefully be either formal or informal in character – and to explain why both are of value.

For example, Haynes et al (2011a) reported how many of the policymakers they interviewed highlighted the importance of researchers making themselves available for informal consultations as a way of supporting their research-informed decision-making and for strengthening their relationships with researchers.

Oliver et al (2014, p4) suggest that "the serendipitous nature of the policy process" – which was emphasised in a number of the studies they reviewed – meant that unplanned contact

via informal relationships often played an important role in policymakers finding relevant research evidence.

Over 90% of academic survey respondents in Haynes et al (2011b) study reported that they cultivated informal relationships with policymakers, using strategies such as maximising coffee opportunities around meetings or via serendipitous social contacts. Academic researchers interviewed by Kothari et al (2009), reported that personal relationships could be built over time by informal contact with policymakers at events such as conferences and symposia. These forums provided important opportunities for researchers to meet new government contacts and can be important pathways to more formal relationships. Further, they provide ways for academics to informally continue relationships with policymakers who they have already worked with on more formal projects or collaborations.

However, formalised relationships could also be preferred and prioritised.

Policymakers, for example, noted how the use of researchers from research bodies funded through formal partnership arrangements could "streamline" contracting and research planning processes (Haynes et al, 2011a). Further, these partnerships were considered to provide clearer, more accessible pathways for research-related dialogue between researchers and themselves.

A number of studies documented how researcher participation in formal relationships, such as participating in government committees and advisory groups, could support research utilisation. For example, the academic researcher respondents of Haynes et al (2011b) study reported actively participating in formal relationship types, including contracted research relationships, committees, taskforces, working parties and summits. Involvement in these formal kinds of linkages meant that researchers became more aware of the range of different perspectives around a policy issue, were able to identify concerns that could become the focus for research efforts and were afforded opportunities to disseminate their research (Kothari et al, 2009; Haynes et al, 2011b).

Thus formal and informal relationship types have been found to be complementary – with policymakers and academics highlighting participation in both, often simultaneously, in order to best support the influence of research in policymaking.

Contracted/commissioned research

Efforts in the literature to understand the relationships that support research uptake in policy contexts has often focused on contracted/commissioned research arrangements, and emphasised the degree to which policymakers take an active role in the research process itself. For example, involving key individual research users (either decision-makers or opinion leaders) in the research planning and design stages, is noted as beneficial by numerous studies, including those by Lomas, (2000a); Ross et al, (2003); Vingilis et al, (2003) and Whitehead et al, (2004). Surprisingly, there appears to have been very little work undertaken to better understand the specific arrangements that might best support research uptake across the wide range of contexts in which contracted research relationships are undertaken.

Ross et al (2003) drew on data collected via semi-structured interviews across seven research programs involving contracted research funded by the CHSF, to devise a three tiered model of decision-maker (or policymaker) involvement in the research process. These tiers are as follows:

- Formal supporter – policymaker explicitly supports research goals and objectives but is not actively involved in the research process;
- Responsive audience – policymakers are actively involved in the research process by responding to researcher approaches with feedback, information or tactical advice; and
- Integral partner – policymakers are actively involved in the research process as a significant partner shaping research directions and process.

Ross et al (2003) highlight that policymakers could play more than one role outlined in any given stage of the research process.

Mitchell, Pirkis, Hall & Haas (2009), suggested an alternative model that seems to be better able to capture a more complex range of contracted research relationships, and to document the fluctuating nature of some of these relationships The authors identified a number of dimensions of partnerships between researchers and decision-makers that could be used to describe and differentiate types of partnership (Mitchell et al, 2009, p106). The dimensions are:

Dimension 1- Decision-maker involvement in research versus researcher involvement in decision-making

Dimension 2 - Investigator versus decision-maker driven research

Dimension 3- Stages of the research/decision-making process

Dimension 4- Discrete projects versus programs versus ongoing reciprocity

Dimension 5 - Formality and structure of linkages

Dimension 6 - Active versus passive involvement

Dimension 7 - Concentrated and specific versus diffuse and heterogeneous linkages

Fundamentally, the tools developed from these pieces of work would suggest that contracted/commissioned work involves varying degrees of "co-production" between academics and policymakers, depending on the nature of the project, the context in which it is undertaken and the preferences and skills of project participants. This means that care needs to be taken in making assumptions about the degree to which contracted/commissioned research can be, in fact, understood to be "co-produced" research. These tools could be usefully employed in future research efforts to develop an evidence-base to understand more fully which types of policymaker involvement in research activities, under what circumstances, might most efficiently and effectively facilitate research utilisation.

Knowledge brokering

The recent focus on knowledge mobilisation, and knowledge brokering within this, has been the impetus of a growing focus on theoretical and empirical efforts to understand more about what makes an effective knowledge broker, as a distinctive type of linkage relationship. However, as Ward et al, (2009a, p 275) emphasise, "Although knowledge brokering has been proposed as a positive mechanism for transferring research evidence into policy and practice, we have identified several challenges that threaten its development. The greatest of these is the lack of evidence about how brokering works, the factors that influence it and its effectiveness." The authors propose several possible reasons underpinning this, with the main ones including a lack of agreement about the key functions and skills of brokers, the multiplicity of types of knowledge broker roles, a practice of combining different models for

knowledge brokering into specific interventions, and ultimately the absence of an integrated evaluative framework to support research efforts around what works.

Much of the empirical research that has been undertaken to date has aimed to describe and make some judgments about a wide range of specific knowledge brokering strategies in particular contexts. For example, Dobbins et al (2009a & 2009b) and Robeson et al (2008) reported on trials employing knowledge brokers to implement knowledge exchange strategies in Canadian public health care settings. Martinez & Campbell (2007) reported on a more institutionalised form of knowledge brokering system between the Sax Institute and the NSW Department of Health aimed at supporting the use of research evidence in policy and planning processes. These studies all suggest that knowledge brokers, and brokering strategies, are successful in helping to more effectively manage knowledge, support linkage and exchange or relationship-building goals, and/or to enhance the capacity for research use in target organisations or communities. A body of knowledge describing the common elements of knowledge brokering, and documenting the array of functions, roles and activities they may undertake has also been developed via such studies (a brief overview of these characteristics of knowledge brokering was provided previously in the chapter).

Additionally, empirical studies of knowledge brokering all generally agree that knowledge brokering is contextual, complex and diverse (Conklin et al, 2013; Lavis et al, 2003; Lomas, 2007; Robeson, 2008; Rigby, 2005; Dobbins et al, 2009a & 2009b; Ward et al, 2012; Caswill & Lyall, 2013) – and thus not static (Sin, 2008, p8).

Social networks and linkages

As a research methodology network analysis is very resource and time intensive, particularly where observational methods are drawn upon. This would perhaps explain why empirical studies exploring the role of networks in the utilisation of research in policy contexts are few. However, where these studies have been undertaken, they provide useful insights into how linkages play a role in research utilisation – and have challenged some tacit assumptions about the qualities of linkages required to most effectively support research uptake.

The work of Huberman (1990), which involves multiple-case “tracer” field studies to explore the role of reciprocally influential relationships in the process of research utilisation, is frequently cited in the literature as one that provides important empirical evidence to support

the notion that linkages enhance research impact[12]. Huberman (1990) identified five levels of "strength" of linkage relationships between researchers and users, informed by the nature of contact before, during and after a research process. He then explored how these changed over time, with continued involvement in a research relationship. He found that the impact of linkages is cumulative and less resource intensive over time. In particular, he noted how the initial investments of time and resources to build links became less relevant as the relationship developed, with research findings flowing into research settings as a more natural function of the ongoing relationship. Thus, as a linkage relationship strengthens, it becomes a stronger "bridge" between research producer and user networks – and supports greater research impact.

A number of social network research studies exploring the nature and quality of the most helpful linkages to support innovation suggest that network density (i.e. the number of relationships) and strength of ties may not be as important as once thought. A mixture of ties that "bridge" strategic network locations and/or significant organisational positions have been found to be more significant than the strength of particular ties (Considine et al, 2009; Burt, 2002).

Finally, Lewis (2006), in a study aiming to map influential actors in a Victorian health policy network, found that study participants judgments of influence were based on personally knowing the people they nominated as influential. They argue this finding lends support to the assertion that network connections are more likely to be based on "homophily" or likeness between actors within a network, as suggested by Lin (2001) and McPherson & Smith-Lovin (1987) in theoretical work around social capital and networks. Thus, notions of cultural dissonance as a barrier to research utilisation would also appear to be important within network framings of policy making.

Reported functions for linkage relationships

The roles or functions of linkages in supporting research use are more likely to be understood via theoretical explanations of research use in policymaking in the research

[12] Most studies that identify this link do so either on the basis of collating self-reports by policymakers and/or researchers, or using regression analysis approaches with survey data sources.

utilisation literature, than to be informed by empirical explorations. However, several more recent studies have begun to provide some empirical insights.

Haynes et al (2011a) report that policymakers use researchers in policymaking processes (drawing on a range of relationship strategies) to galvanise ideas, clarify existing research evidence, provide advice, assist in the task of persuasion and to defend policy options or positions. Policymakers, in particular, used researchers as an adjunct or alternative to published research as it made it easier to adapt policy arguments to changing policy environments. Personal dialogue with researchers enabled researchers to be part of creating policy responses that are tailored to stakeholders and the community. As a result of this focus, researchers were more likely to be used in conceptual or political ways than to support the attainment of a particular instrumental end.

Haynes et al's (2011b) study with academics, notes how academic researchers considered collaborations with policymakers enhanced the policy-relevance of research, built their reputation, and facilitated their ability to monitor emerging policy opportunities and develop strategic responses, thereby providing greater access to further research opportunities. Academic researchers also highlighted how their relationships with policymakers enhanced mutual understanding – with the key benefit of this for researchers being that they had a better understanding of policymaker needs and constraints, and were therefore better positioned to influence policy.

Sá & Hamlin (2015) reported that well-developed relationships between researchers and policy officials facilitated dialogue, which in turn increased research collaboration. The authors also noted how relationships assisted in enhancing the relevance of research for local contexts – with more local research being undertaken, the researcher playing a more active role in adapting or interpreting findings for the local context, and researchers being more likely to draw policy official attention to research findings with local policy relevance.

Ward et al (2009a), referring to the findings of various empirical studies to date, highlight how knowledge brokering linkage relationships support more effective knowledge management, enhance relationships and improve capacity building for research utilisation.

Haynes et al (2011a and 2011b) concluded that the role of relationships in supporting the policy influence of research is, thus, complex and pivotal – "Relationships not only improved

research translation but established a trustworthy platform for reciprocal information-sharing that supported robust debate and negotiation about the framing of public health problems and solutions…The emphasis on relationships, together with interpersonal skills, supports the argument that influence is not solely about research as a transferable product, but is very much about the dynamic exchange of ideas and co-construction of policy responses that takes place between researchers and policymakers" (Haynes et al, 2011b, p 1054).

Linkages can evolve, enhancing capacity for research utilisation over time

The notion that the character and quality of linkage relationships have the potential to evolve as a direct function of ongoing participation in linkages was highlighted in some studies.

For example, a number of Kothari et al 's (2009) respondents indicated how their relationships strengthened over time - with infrequent contact or meetings being replaced with more regular face-to-face contact for joint discussion, and more frequent telephone and email contact.

Easterby-Smith et al's (2008) case study research exploring absorptive capacity themes in a public sector agency (noted earlier in the chapter in the section presenting absorptive capacity organisational management theory), also highlighted how linkage relationships develop over time to become more effective in supporting research use.

Haynes et al's (2011a) policymaker interviewees acknowledged that trusted researchers who "engaged" with government by being responsive to their policy-related research needs, were more likely to be called upon to participate in policymaking processes (such as providing briefings and participating in committees) and to have requests for meetings to discuss research and advocate for policy action received positively. In this sense, the mutually beneficial nature of the relationship underpins its ongoing growth and development.

Finally, as detailed above, Huberman's (1990) found that the impact of linkages in supporting research use is cumulative and less resource intensive over time.

Linkages can be an unreliable strategy for research utilisation

Haynes et al's (2011a) study suggests that linkage relationships can be an unreliable way of promoting research use. They found that the influence of a connection between a researcher and an individual in a policymaking organisation can be subject to "bureaucratic

vagaries", high levels of staff turnover, and poor communication between different areas of the organisation. As a consequence they suggest that, as Flitcroft et al (2011) also found, advice that informs decision-making at one level can be lost at another – even when researchers are part of more formal working parties or advisory groups.

Sá & Hamlin (2015) highlight that, despite clear findings from their study suggesting that relationships between policy officials and researchers and capacity to use research can be closely connected, there was more likely to be an absence of meaningful relationships than strong ones amongst their study participants.

CONCLUSION

Oh & Rich (1996), note that a lack of an integrated conceptual framework for understanding research utilisation broadly has hampered research efforts aimed at understanding the processes that contribute to research utilisation. They highlight how most empirical research has then essentially become part of a "factors affecting literature", which does little to facilitate greater conceptual integration. Communication-related studies in this context, they argue, have tended to take a "two communities" metaphor conceptual structure for their work. One outcome of this is that research results which highlight the importance of linkages as a "factor" facilitating research uptake have then often been interpreted as supporting this narrow function of bridging cultural dissonance – rather than being a focus for further research and exploration.

Nutley et al. (2007) suggest that models such as the "two communities" and the "linkage and exchange" models have gained traction because they resonate with the experiences of policy-makers and academic researchers. However as supply-and-demand framework models, they have also been heavily criticised as simplistic. Recent criticisms have drawn on research findings that indicate that the policymakers they studied do value and rely on research (for example, Newman et al, 2016; Haynes et al, 2011; Bogenschneider & Corbett, 2010; Landry et al. 2003), to suggest that "non-use" may more reflect a continued focus on simple, identifiable "instrumental" uses of research rather than reflecting more complex processes around the influence of research in policymaking. Historically criticisms have centre on the degree to which cultural differences actually account for research non-use as opposed to a range of other important intervening variables. An over-emphasis on supply-

and-demand frameworks means that the importance of the organisational and political contexts within which problems are defined and different actors operate has often been overlooked (Gibson 2004; Nutley et al. 2007; Oh & Rich, 1996; Jennings & Hall, 2012). Further, this focus does not accurately reflect the diversity of channels by which research flows in and out of policy contexts (Nutley et al, 2007). More pluralistic perspectives on the policy process highlight the role wider policy networks, communities, and interest groups play in influencing how evidence enters policy.

The latest evolution in thinking around research utilisation, emphasises interaction and policy as "argumentation" model explanations of research utilisation in policymaking, but also draws on "messy" policymaking world understandings of the influence of research in policymaking. Interactive approaches to the transfer of knowledge thus still feature, but are progressed with themes around new modes of knowledge, diffusion of innovations, entrepreneurship, leadership and knowledge brokering (Oliver et al, 2014; Caswill & Lyall, 2013). This suggests many and varied roles for linkages in supporting research impact in policymaking.

To date, as the review of literature presented in this chapter highlights, empirical efforts to explore linkages has been limited. It is likely that the many layers and complex nature of policy processes and environments, coupled with the nature of multi-faceted knowledge use processes, may in part explain the lack of evidence-based clarity about linkages. Difficulties around identifying and measuring research utilisation in terms of research impacts, have also acted as a significant barrier – how do you measure whether a linkage strategy has been effective in supporting research impact when it is difficult to measure that research impact?

However, it is also likely to be shaped in part by the absence of a more integrated model for explaining the influence of linkages on research use in policymaking. Such a model would provide a structure for joining up the plethora of factor findings, together with single-focus study findings, over time to develop a fuller understanding of linkage relationships in policymaking. This model could be informed by existing theories – but also needs to be shaped by a well-developed, evidenced-based understanding of the range of ways that linkages support research use in policymaking. A functional understanding of linkages has been a significant gap in the research utilisation literature to date, and will be progressed in

the context of this project by adopting a capacity focus for understanding how linkages shape research utilisation.

A reliance on “factor” type findings in the literature has done little to progress understandings around how the different types of linkages relate to each other, how linkages shape research influence, or the processes associated with initiating, developing and sustaining effective linkages. These are all evidence gaps that make it difficult to consider how linkages can be enhanced to support the policy uptake of social research evidence.

The broad range of linkage relationships that exist have not been meaningfully documented anywhere in the literature, making it difficult to undertake work that develops understandings around the more specific benefits or processes associated with each type. Such work could support the creation and implementation of more relevant, feasible and targeted linkage strategies across policy contexts. My project will start to document the types of linkages that academics and policy officials report they participate in, present participation data, and consider what shapes linkage participation.

Finally, linkages are very frequently highlighted as the answer to increasing the impact of research in policymaking in the literature, yet do not appear to be enacted often or well to achieve this end. Barriers to research relationships are mentioned in some empirical studies around linkages, but these, and the facilitators for linkage relationships, have not received discrete attention to date. A better understanding of these would shed more light on the scope of linkages as a strategy for enhancing research use.

My thesis does not intend to deliver a highly detailed or definitive model of linkage relationships and their influence on research use in policymaking. Instead it will begin this work by drawing on the array of theory and strands of evidence presented in this chapter, together with an analysis of four large datasets, to create a fuller picture of the character and processes associated with linkages in policy contexts. The data sources drawn on for my project are detailed in the next chapter – and my data analysis strategies and broader research methodology, which were introduced in the previous chapter, are also more fully outlined.

CHAPTER 3 – METHODOLOGY

INTRODUCTION

My research project involved the use of a mixed methods approach drawing on large quantitative and qualitative data sets. As highlighted in the introductory chapter for this thesis, my research was undertaken as part of an Australian Research Council (ARC) funded Linkage project entitled "The Utilisation of Social Science Research in Policy Development and Program Review", and drew from the data gathered for that project. This chapter provides an overview of the data collected for the Linkage project that was subsequently drawn upon for my PhD research. It details key characteristics of the respondent samples for each of the data sets, and highlights a number of data limitations that were considered in developing my research methodology. The chapter then moves on to outline the mixed methods approach and data analysis strategies I adopted to effectively explore research questions for my project using these data sources. In doing so it provides a context for understanding the findings to be outlined in subsequent chapters of this thesis document.

OVERVIEW OF THE DATA SOURCES AND DATA COLLECTION

The ARC Linkage project aimed to explore the ways in which social science research is currently used within government policy contexts and the conditions and circumstances that support or hinder the utilisation of social science research. It also sought to identify models for enhancing the policy relevance of social research knowledge. It was implemented in partnership with nine state and Commonwealth linkage partners. Four key sets of data were collected in four phases over the course of the project. This data and the project phases are outlined in the table on the following page.

Table 6 – Project Phases and Data Collected

PROJECT PHASE	TIMEFRAME	NUMBER OF PARTICIPANTS
A targeted survey of Australian academic social scientists	November 2010 - May 2011	693
A targeted survey of public servants in various policy-related roles in state and federal government agencies	November 2011 - February 2013	2084
Semi-structured interviews with a selection of academic social scientists	September 2011 - March 2013	100
Semi-structured interviews with a selection of public servants in various policy roles in state and federal government agencies	July 2012 - September 2013	125

Both the broader project and this thesis are innovative research projects in that they are the first to draw on such large scale data collections undertaken in Australia to explore the issues of social policy research production and its impact on policy making. This data collection is also distinctive, in that it explores the perspectives of both public servant social policy officials and social research academics, enabling these perspectives to be compared and contrasted. Individual and organisational level dimensions of research use were canvassed. Finally, the use of both quantitative and qualitative methods enabled the complementary strengths of each methodology to be drawn upon.

The academic survey

The survey instrument for the academic survey was designed by the ARC Linkage project team, and partly based on existing survey instruments and scales reported in the literature (for example, Bogenschneider & Corbett, 2010; Landry, Amara & Lamari, 2001a, 2001b). New questions were also developed to gather additional data relating to research impact and the benefits and problems encountered in research collaborations. A space was provided for free text responses at the end of the survey to enable respondents to flag any other issues they felt pertinent but not addressed by the closed structure of questions

elsewhere in the instrument. Thus, a limited amount of qualitative data was gathered via the survey.

The initial survey instrument was piloted by being sent to approximately 500 Fellows of the Academy of Social Sciences (ASSA)[13] in September – October 2010. Due to confidentiality concerns on the part of the ASSA executive, the ASSA executive distributed the survey to its members via their internal email system rather than providing contact details of individual ASSA members to the project team. It is estimated that 500 members were sent the survey. Eighty-one pilot surveys were completed, making the response rate for the pilot approximately 17 percent. Pilot survey responses were reviewed by the project team, and it was considered that no significant changes to the survey instrument were required.

The final survey (see appendix one) consisted of 27 questions, which supported the collection of the following data items:

- Demographic information
- Professional profile
- Research discipline
- Number and type of grants
- Partnership experience
- Researchers context
- Dissemination and adaptation preferences and practice
- Perceived barriers to research uptake
- Perceived benefits of research collaborations
- Problems encountered in working with partners to produce research
- Perspectives around priorities of end-users of academic research
- Research use scale
- Perceived impact of research
- Qualitative comments section

The ARC Linkage project team then developed a database of social scientist academic recipients of ARC Discovery and Linkage grants[14] between 2001 and 2010. The reason for

[13] Fellows are social science academics who are recognised for their contributions to the social sciences in Australia and abroad. See http://www.assa.edu.au/.

[14] Australian Research Council grants are national competitive grants. These grants fund a significant proportion of research activity in Australian universities. Discovery grants fund fundamental research that

targeting academics who had secured these research grants was to ensure the project captured experienced academics with a history of collaboration with external partners. By securing the participation of those academics most likely to have engaged in policy-relevant research efforts collaboratively with policymakers, the ARC Linkage project included a sample of academics who could realistically respond to survey questions that aimed to explore the impact and dynamics of such partnerships. The selection of relevant disciplines within the field of social and behavioural science was based upon the 'field of research' codes used by the ARC to categorise the funded projects, and comprised codes relating to anthropology, criminology and law enforcement, human geography, political science, policy and administration, demography, social work, sociology, other studies in human society, psychology, education and economics. Using this database a web link to the survey was sent via email to 1,950 between November 2010 and February 2011. Reminder emails were sent twice during this period and the survey closed in May 2011. A total of 612 completed surveys were received, which constitutes a response rate of 32 percent.

When the main academic survey was combined with the ASSA pilot, the final total was 693 responses.

The low response rate achieved partly reflects the difficulties associated with encouraging time-poor academics to participate in projects as research subjects. It is also recognised that web-based surveys are often subject to low response rates (Sue & Ritter, 2007; Nulty, 2008).

Policy official survey

A targeted survey of policy-relevant personnel with responsibilities for the development and/or delivery of human service policies and programs within public sector agencies in Australia was undertaken from late 2011 – early 2013.

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may not have an immediate applied focus, but it is assumed to have some broader community benefit. Linkage grants fund research collaborations between academic chief investigators and industry partners (including government agencies). Industry partners are required to make a cash and in-kind contribution to the project (see http://www.arc.gov.au/ncgp/default.htm). Allocation of these grants emphasises a track record of previous participation in research projects, with 40% of ARC Discovery assessment based on track record.

This survey instrument also reflected existing survey instruments and scales reported on in the literature (for example, Bogenschneider & Corbett 2010; Haynes et al, 2011a; Haynes et al, 2011b). It endeavoured to reflect topics of interest already canvassed in the academic survey but from a policy official perspective. The final survey (see appendix two) consisted of 37 questions, which enabled data to be collected around the following key themes:

- Research context/sources of research engaged
- Research access, infrastructure, capacity and use
- Skills and training of public sector staff in acquiring and effectively using research
- External linkages
- Practices around consultation of academic research
- Practices around contracting academic research
- Perceived barriers to research translation
- Research utilisation priorities of end-users
- Research impact
- Perspectives on the policy-making process – and the role of research within this
- Perspectives on academic researchers

The policy official survey instrument also included an open-ended question, which enabled a small amount of more qualitative data to be gathered across the large sample.

A total 2084 public servants from twenty-one agencies completed the survey. Included were Commonwealth (national) agencies, together with departments in the three most populated states (representing 77% of the Australian population): Queensland, New South Wales (NSW) and Victoria.

In terms of understanding the make-up of this sample, a cursory overview of the nature of Australian government and its bureaucratic institutions is provided in the following paragraphs.

Australia's government is a federal system, with a Commonwealth (or federal) government and six states and two territory governments carrying out both constitutionally prescribed and historically agreed policy and service provision roles. Governments are appointed through a preferential voting system at both the federal and state/territory levels, with representatives elected to serve as members of Parliament. Each elected government's leaders then select ministers from amongst these parliamentary members to oversee specific portfolios. The Cabinet is a meeting of these ministers chaired by either the

Premier/Chief Minister at the state or territory level, or Prime Minister at the federal level. Political, policy and resource allocation decisions are made at these meetings. Each Cabinet minister is responsible for particular sectors of government and the departments that drive policy development and implementation for these sectors. These departments are commonly referred to as line agencies, as they are responsible for developing policy advice for their sector or service area, implementing sector-specific policy frameworks, and the planning, delivery and evaluation of specific services.

Agencies commonly referred to as central agencies, on the other hand, do not have a specific sector or service focus, but have a whole of government focus. These agencies provide advice and support to the government (typically via the relevant Cabinet) around setting broad political, policy and finance frameworks. They provide policy advice both directly via the provision of departmental briefings and reports, and more indirectly by supporting external processes and structures for advice giving relevant to their areas of responsibility (for example, providing secretariat support to government standing committees). Treasury departments at the state and federal levels are central policy agencies that advise on and administer either state/territory or federal financial resources. Similarly Departments of Premier and Cabinet at the state level and the Department of Prime Minister and Cabinet at the federal level provide support for Cabinet processes and lead on establishing agendas for whole of government policy responsibilities. Central agencies such as the Australian Bureau of Statistics (ABS) or the Productivity Commission have a more specific focus or functions - with the ABS being an agency that provides key statistics on a wide range of economic, environmental and social issues to assist with informed decision-making, research and discussion within governments and the community, and the Productivity Commission being a federally-funded body providing independent research and analysis on social and economic policy issues. These two central agencies were specifically involved in data collection for this study due to their unique research production and knowledge brokering functions.

A list of the agencies that participated in the policy official survey by role and state is presented in the table on the following page. Some of these agencies have since been restructured and renamed.

Table 7 - List of Policy Official Agency Survey Participants

ROLE OF AGENCY	LEVEL OF GOVERNMENT	
	Commonwealth	**State**
Central Agency	• Department of the Prime Minister and Cabinet • The Treasury • Australian Bureau of Statistics • Productivity Commission	***NSW:*** • Department of Premier and Cabinet • NSW Treasury ***QLD:*** • Department of the Premier and Cabinet • Queensland Treasury ***VIC:*** • Department of Premier and Cabinet • Department of Treasury and Finance
Line Agency	• Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) • Department of Education, Employment and Workplace Relations (DEEWR)	***NSW:*** • Department of Family and Community Services (FACS) • Department of Education and Communities (DEC) ***QLD:*** • Queensland Health • Department of Communities • Department of Employment, Economic Development and Innovation (DEEDI) • Department of Education and Training (DET) ***VIC:*** • Department of Education and Early Childhood Development • Department of Human Services (DHS) • Department of Planning and Community Development (DPCD)

Due to the time it took to broker access to relevant departments, commencement of the survey across the twenty-one participating agencies was staggered. Individual agencies

also ran the survey for differing amounts of time – this ranged from a minimum of two weeks to a maximum of two months – depending on their own internal circumstances.

Implementation of the policy official survey was overseen, but not undertaken directly by the project team, due to different departmental protocols and the need to protect the confidentiality of survey participants. This meant that implementation strategies also varied somewhat between public sector agencies. However, some consistency was achieved via the adoption of a number of common approaches and survey sampling guidelines across all departments. A contact officer in each government agency maintained control of email lists for the survey, in order to maintain respondent confidentiality. Each of the participating agencies was briefed on the types of personnel who would be well-positioned to respond to the survey, and asked to target the survey to these officials. Sampling aimed to target those public sector staff who might have experience or involvement in a variety of policy-related activities including providing policy advice; policy development; research, evaluation, data collection or analysis; service or program planning; and service design and delivery. Staff to be invited to participate in the survey included Australian Public Service (APS) level 6 or equivalent (which excluded clerical workers and personal assistants), to the most senior management roles. Eleven agencies followed this procedure, and so were able to provide details of surveys distributed and a response rate. A further three agencies were able to provide close approximations of survey distribution and response rates amongst their staff. The remaining seven agencies experienced constraints, typically stemming from impending elections or machinery-of government changes, that meant that they were unable to target their survey distribution as requested. In these cases, a broader staff invitation to participate was circulated with instructions noting the study's targeting and scope in order to support staff self-selection into the survey. The ARC Linkage project team considered that the nature of the questionnaire and the instructions that were distributed with it would have made it unlikely that the results would be substantially biased by unintended responses from public servants whose jobs were not related to policy making.

This indirect application of the survey instrument, together with the variety of approaches adopted by each administering agency, unfortunately meant that a response rate could not be calculated for all agencies – and thus an accurate overall response rate could not be determined for the survey. The 2084 respondents who contributed to the survey thus cannot

be considered a representative cross-section of the public sector. However, as the study included respondents from multiple policy and program domains across state and federal government agencies (with these agencies being of various sizes and levels of responsibility) the conclusions for the study can be generalised more confidently than those from studies where data collection has been confined to a single organisational context.

The academic interviews

The qualitative interview sample for the ARC Linkage project was largely drawn from the survey sample. Academics who completed the survey were asked whether they would be interested in participating in the interview phase of the project, and positive responses were followed up. The ARC Linkage project team considered the sample who indicated that they were willing to participate in the interview process, and sought to identify gaps – such that academics across disciplines, sectors and position types would be captured within the sample. Interviewers also noted interviewee suggestions for further interview subjects, and pursued these where it was felt that the proposed subject would round out the sample and was willing to participate.

It is likely that this sampling method created some bias in interview respondents, with interviewees volunteering due to a particular interest in collaborative research. As the interview group was drawn from the survey sample, this group was also quite senior.

The interview schedule was designed to build upon data gathered from the survey instrument. As such it reflected many of the subject areas of interest included in the survey, but allowed more in depth exploration of perspectives and practices. The instrument encouraged interviewees to present and discuss case examples of research production and research use themes from their work. The instrument itself was designed to be semi-structured and thus used flexibly. It provided the interview facilitator with a list of topics to be covered over the course of the interview with sample questions and prompts for probing areas of interest (see appendix three). The interviewing strategy adopted by interview facilitators involved a response-guided approach to interviewing – with the interviewer beginning with a prepared question and then spontaneously following up with questions that were logical extensions of the answer the interviewee gave to the opening question (Thomas, 2003). Further, facilitators were free to pursue themes of interest not covered

within the interview instrument where these arose over the course of an interview. This particularly provided the flexibility to explore specific context-related research production and use themes (such as exploration of themes in specialised funded research institutes versus university schools) and to identify and explore issues that may have been omitted from the survey instrument. Thus, while all interviews covered a range of key themes and identified numerous common issues, the emphasis placed on each of these varied across interviews over the sample. Although incredibly useful in capturing a very broad range of nuanced themes and issues, the weakness of this approach is that statistical information cannot be readily extrapolated from the interview data. For example, the absence of discussion of an issue in an interview cannot be considered to mean that it was not experienced or considered relevant by an interviewee. Instead it may reflect insufficient time and focus provided to allow for its discussion in the course of the interview.

Most interviews were carried out with respondents face-to-face by a member of the project team. However, a small number of telephone interviews were undertaken, predominantly for academics in more isolated regional university locations.

A total of 100 academic interviews were undertaken. Again, a broad range of social science disciplines was represented.

The policy official interviews

After the completion of the survey process within each government agency, the agency was invited to identify and nominate a small number of senior staff in relevant positions who were willing to participate in an in-depth interview. Some agency staff with a particular interest in the project (and therefore often with significant experience to discuss) self-selected. The ARC Linkage project team was also aware of a number of current and former senior public servants (including some in the project's partner or collaborating agencies) with a reputation for actively working with researchers to pursue policy outcomes. These policy officials were approached directly with an invitation to participate in an interview. Finally, over the course of the interview process there were interviewees who nominated other policy official colleagues with similar research-policy experiences to participate in the interview process.

Interview sampling endeavoured to balance participants across the departments surveyed and to ensure a range of policy roles were represented.

Like the interview schedule for the academic interview data collection, the interview questions for policy official data collection expanded on policy official survey themes relating to the influence of research and evidence in policy decision–making, the uptake of academic research, research collaborations, and the role of networks and processes in facilitating the use of research (see appendix four). The policy official survey instrument was also semi-structured. It provided the interview facilitator with a list of topic themes, sample questions and prompts for probing areas of interest, and encouraged interviewees to present and discuss case examples of research production and research use themes from their work. The interviewing strategy adopted by facilitators for policy official interviews was a response-guided approach as it had been in the academic interview data collection. Facilitators identified and encouraged discussion of areas of project interest not covered within the interview instrument if and as this arose over the course of each interview. For these interviews, this approach was preferable because it enabled facilitators to best tailor their interviewing style and focus to suit policy officials across an assortment of very different policy settings and a broad range of departmental positions. For example, the level of discussion around research impact issues and challenges for departmental officers in policy development and project management positions was very different to that of heads of departments. Thus, the interviews covered a range of key themes and identified numerous common issues, but the emphasis placed on each of these varied across interviews over the sample. The same cautious approach to extracting statistical information from the interviews as that needed for academic interview data applies to the policy official interview data because of this data collection approach.

Again, most interviews were carried out with respondents face-to-face by a member of the project team. However, some telephone or skype interviews were undertaken with policy officials who were unavailable or recruited after a project team member had been scheduled to visit interstate locations.

A total of 126 interviews were conducted with policy officials from July 2012-December 2013.

This chapter now briefly presents descriptive data which provides a picture of the key characteristics of each of the respondent samples, before moving on to outline the strategies this project adopted for using this data to explore identified research questions.

KEY CHARACTERISTICS OF THE RESPONDENT SAMPLES

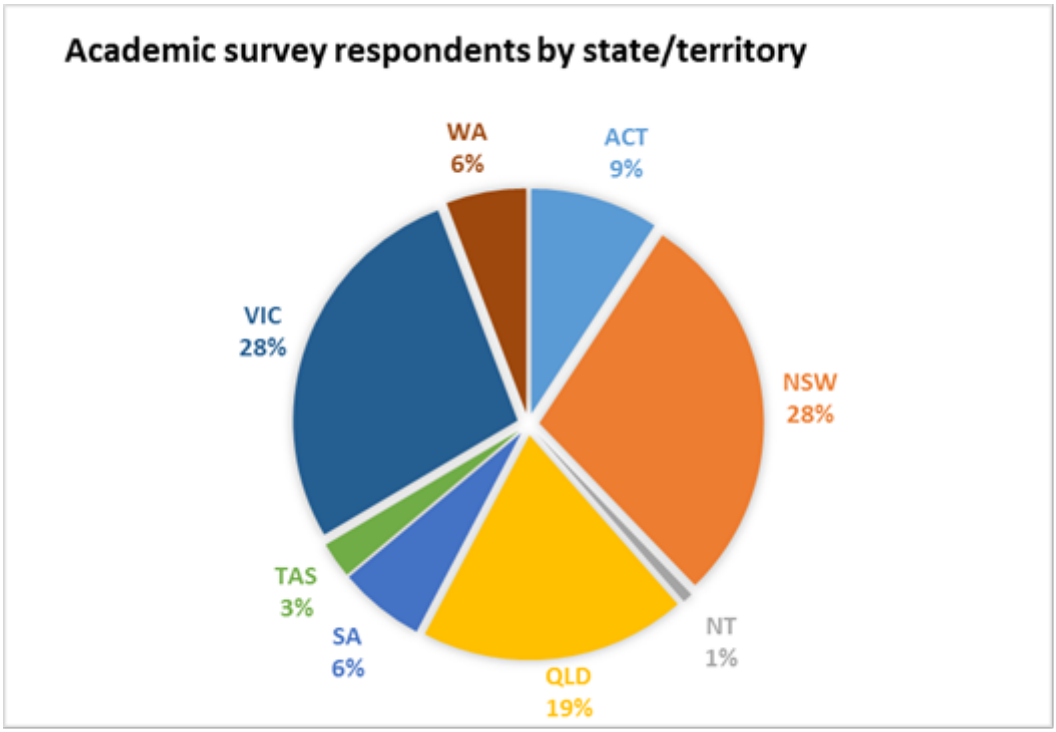
This section of the chapter briefly presents key descriptive characteristics for each of the four data set samples. The samples are addressed in the following order - academic survey respondents, academic interviewees, policy official survey respondents, and policy official interviewees. An understanding of these key characteristics is important for contextualising the findings to be presented in subsequent chapters of my thesis.

Academic survey respondents

The academic survey sample consists of 381 males and 312 females – a total of 693 respondents.

Survey respondents were located at universities across Australia, with the largest proportion being at universities based in the most populated states of New South Wales and Victoria, or at national universities in the Australian Capital Territory. The location of academic survey respondents by state/territory is illustrated in the figure below.

Figure 4 - Academic Survey Respondents by State/Territory

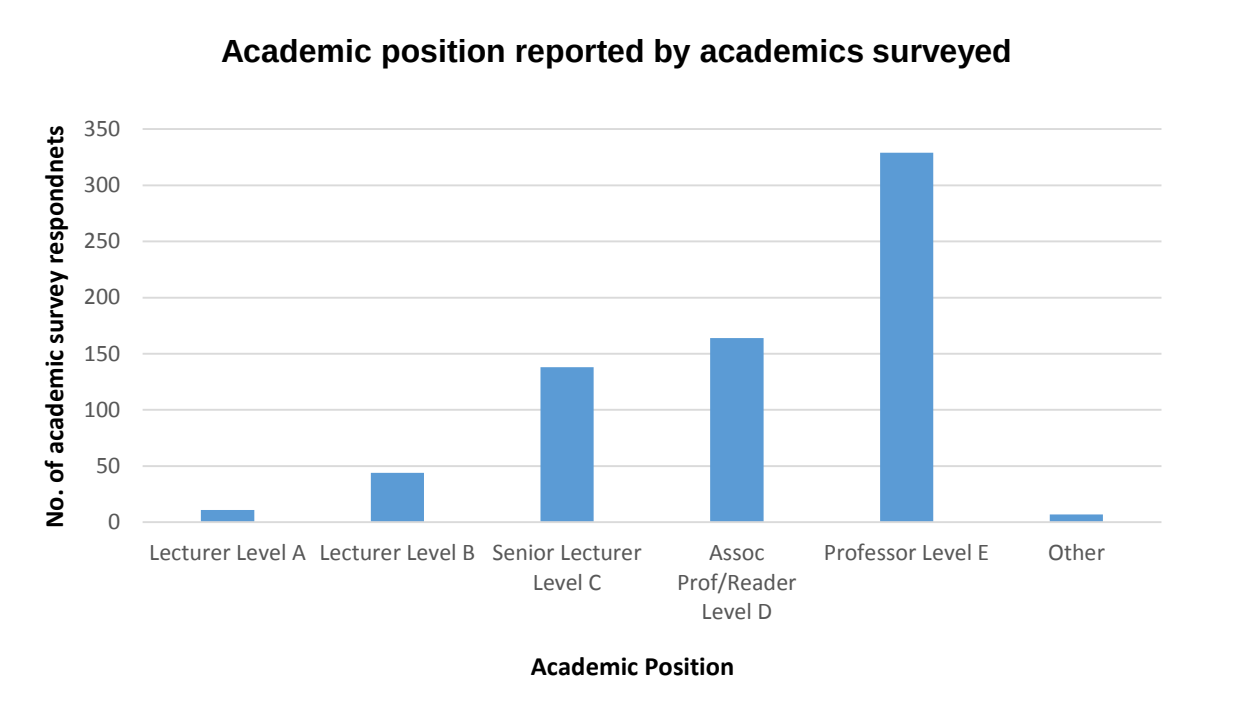


In terms of their academic role, 65 percent of the sample reported being in research and teaching positions, as compared with 35 percent who reported being in predominantly research roles. Academics in research and teaching positions may have less capacity for pursuing and sustaining linkage relationships than those who are in predominantly research roles.

Sixty-seven percent of the sample reported working within a university school or department context, with the remaining 33 percent reporting that they worked in a research centre/institute context.

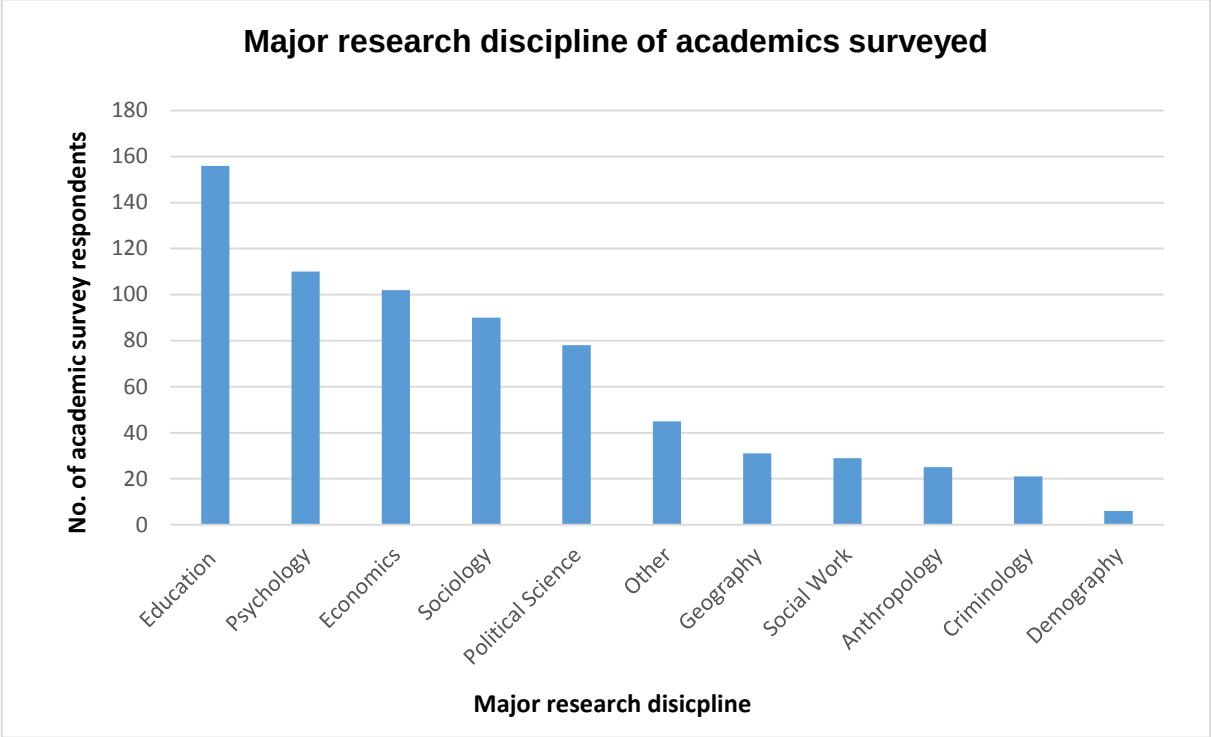
The sampling strategy for the survey meant that the academic respondents were all quite senior, with 71 percent being Level D (Associate Professor/Reader) or above. The professional profile of academic survey respondents is illustrated in figure six below.

Figure 5 - Professional Profile of Academic Survey Respondents



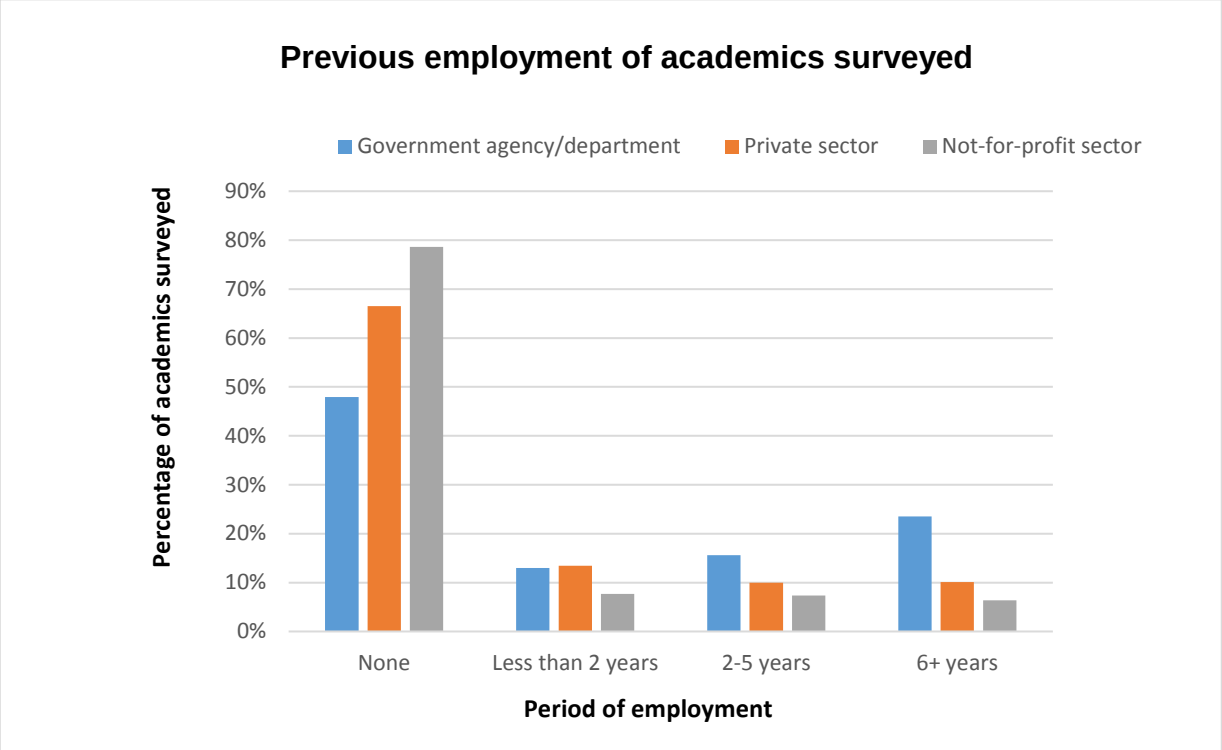
A broad range of social science disciplines was represented in the sample, including sociology, education, economics, psychology, social work, political science, anthropology and criminology. The major research disciplines of academic survey respondents are illustrated in the figure below.

Figure 6 - Major Research Discipline - Academic Survey Respondents



Academics were asked to report on their previous employment experiences in the survey, since this work experience can be influential in shaping research preferences and professional networks within their academic role. The results of this question are presented in the figure on the following page.

Figure 7 - Previous Employment - Academic Survey Respondents



The figure above illustrates that surveyed academics were least likely to report having previous employment in the not-for-profit or private sectors – with 79 percent of the sample surveyed reporting no experience in the not-for-profit and 67 percent reporting no experience in the private sectors respectively. The academics were most likely to report previous employment in a government agency or department, with a total of 52 percent of those surveyed indicating that they had public sector work experience. Further, for 24 percent of academics surveyed, this public sector work experience involved six or more years of employment in the public sector (although this may not have been worked continuously).

Academic interviewees

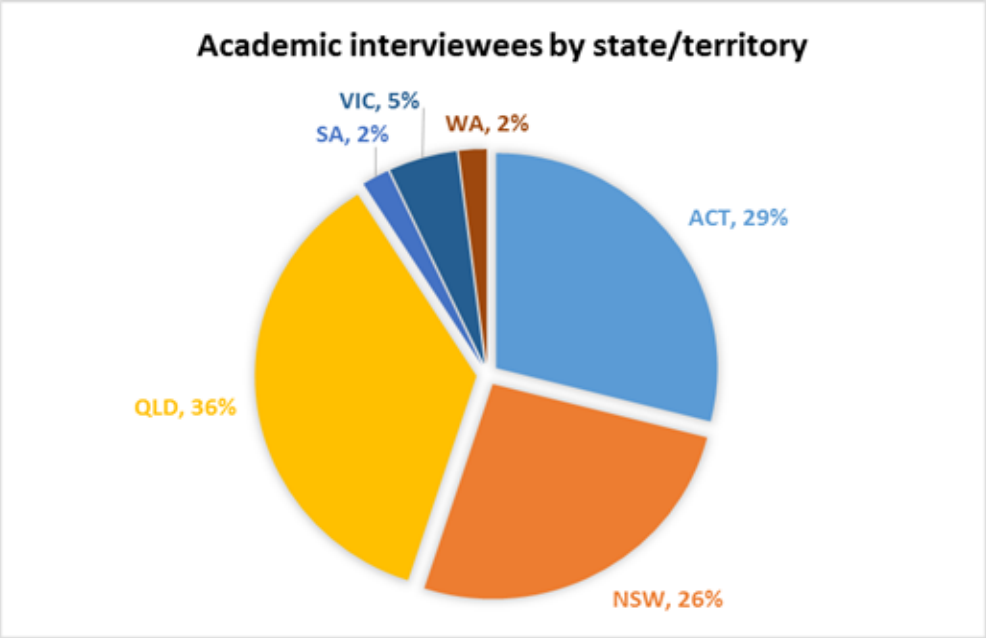
The descriptive data presented here draws on information obtained from the academics who participated in interviews for the ARC Linkage project. As noted previously in the chapter, the semi-structured nature of the interview process meant that information was not gathered

from interviewees uniformly across each interview. This impacts on the capacity to draw statistical information from the interviews. In terms of the descriptive data presented below, data could accurately be collated around interviewees' gender, seniority, position and academic discipline. Varying degrees of information were gleaned about interviewees' current role and past work experience, thus it is only possible to provide a qualified overview of this below.

The academic interviewee sample consists of 68 males and 32 females – a total of 100 respondents.

The location of academic interviewees by state/territory is illustrated in figure eight below. The accessibility of subjects for interviews by the ARC Linkage-funded project team (with team members being based in Queensland and New South Wales, and having a limited project budget for travel) had some influence in shaping this sample, as illustrated by the relatively small proportion of academic interviewees from Victoria, Australia's second most highly populated state. The relatively high proportion of academics interviewed in the ACT, on the other hand, reflects efforts to balance the nature of roles of academics targeted via the interview process, with a number of national research centres/think tanks being physically located in the ACT.

Figure 8 - Academic Interviewees by State/Territory



The academic interview sample is constituted almost solely of a group of senior, highly experienced academics. Eighty-two percent of the sample have a title of either Associate Professor or Professor (including Emeritus Professor positions). Of those academics without these titles, many reported being in alternately titled senior positions outside of universities (where "professorial" titles are not used) and/or having a significant track record of research work.

In terms of the context academics reported working in at the time of the interviews, 67 percent reported being based in university schools or departments. The remaining 33 percent reported working within research centres/institutes or think tanks. However, many research centres or institutes are formally located in faculties of universities.[15]

It is not really possible to draw an accurate picture of academics with teaching and research versus research roles from the interview data, other than to note that almost all of those interviewed indicated they have substantial research experience. Some commented on the role that teaching plays for them in disseminating research, others noted frustrations around juggling research and teaching responsibilities. Some of the interviewees had "lecturer" or "senior lecturer" as their position title at the time of interview. However, as this information was not gathered consistently across all interviews, data cannot be collated with any confidence.

Interview data could be collated in relation to the major research discipline of interviewees with some confidence. Disciplinary information was either provided by the interviewee as part of an overview of their role and position at the commencement of the interview, and/or formed part of subsequent interview discussion around the nature of research work that they have predominantly engaged in. Information on the academics' research disciplines was categorised in a similar manner to that presented above for the academic survey, in order to enable comparisons between the profiles of the two samples to be more readily drawn. This data is presented in figure nine on the following page.

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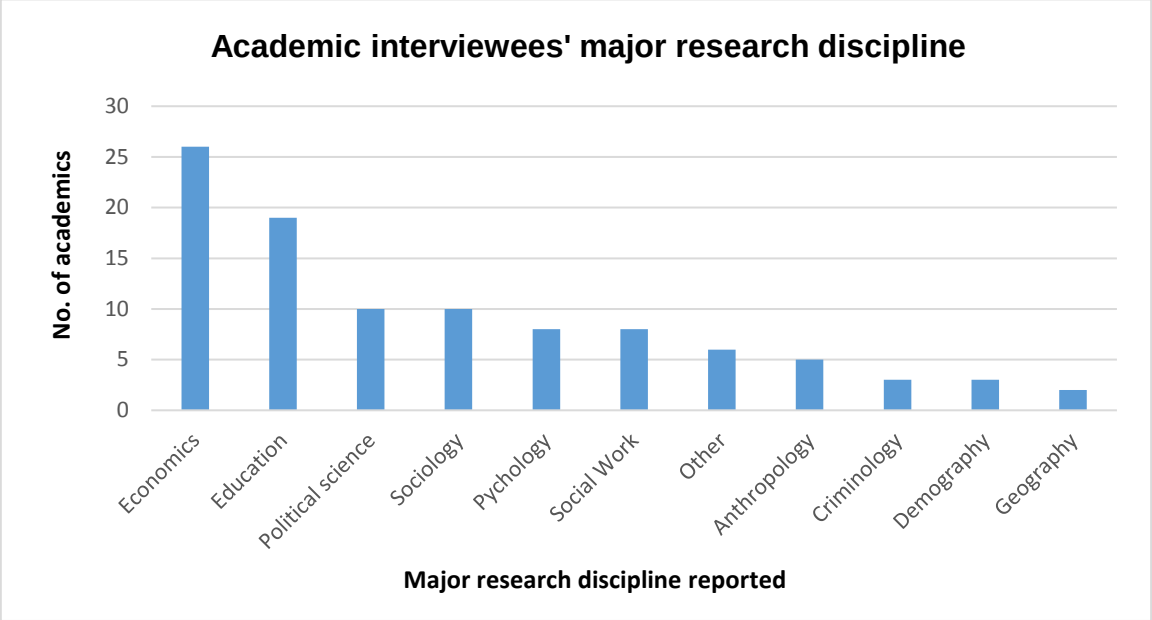
[15] Currently very few research centres or institutes are independently funded and/or operate independently of universities within Australia.

Figure 9 - Major Research Discipline - Academic Interviewees



Both the academic survey and interview samples involve a wide range of disciplines. However, the breakdown of representation for each discipline is not mirrored across the two samples. A key difference to note is that academic economists were targeted more within the interview data collection than in the survey data collection. Given the strong imperative for policy decisions to be economically viable, the project team recognised the pivotal role that economists play across a full range of social policy making fields and that advice and input into policy decision-making may be sought both from within and outside of the public sector. The greater involvement of academic economists within the interview process aimed to maximise insights into the ways in which economic research is drawn upon to shape policy processes, including how this might happen across different disciplinary contexts.

Finally, in terms of prior work experiences, approximately 30 percent of the academics interviewed reported public sector work experience.[16] This information was either volunteered by the academic by way of introducing themselves in their interview, or later raised and drawn upon in addressing more specific interview questions (for example,

[16] Public sector work experience involved experience of working in a policy or program planning area within a Commonwealth, state or local government setting.

responding to questions around how projects were initiated, the character of relationships between policy officials and academics and ways in which relationships between policy and academic sectors might be enhanced). Some academics also drew on this experience to illustrate their understanding of the cultures, practices or processes of public sector research partners.

Of the 70 per cent who had not been employed in a public sector context, there was a group which reported a strong preference for applied research pursuits and an extensive track record of working closely with public servants to provide research products (typically in the context of consultancies/research contracts). It is difficult to present meaningful statistics that would define this group, as objective measures (such as numbers of projects or numbers of public sector research partners) were not specifically gathered within the interviews. However, it is clear from an overview of their interviews that these academics were able to display a great deal of familiarity with public sector processes, practices and challenges as a result of their close working relationships. It should be noted again that all of those who participated in an interview for the ARC Linkage project would have worked on at least one policy-related research project involving public servant stakeholders as this was a criterion for interview sample selection.

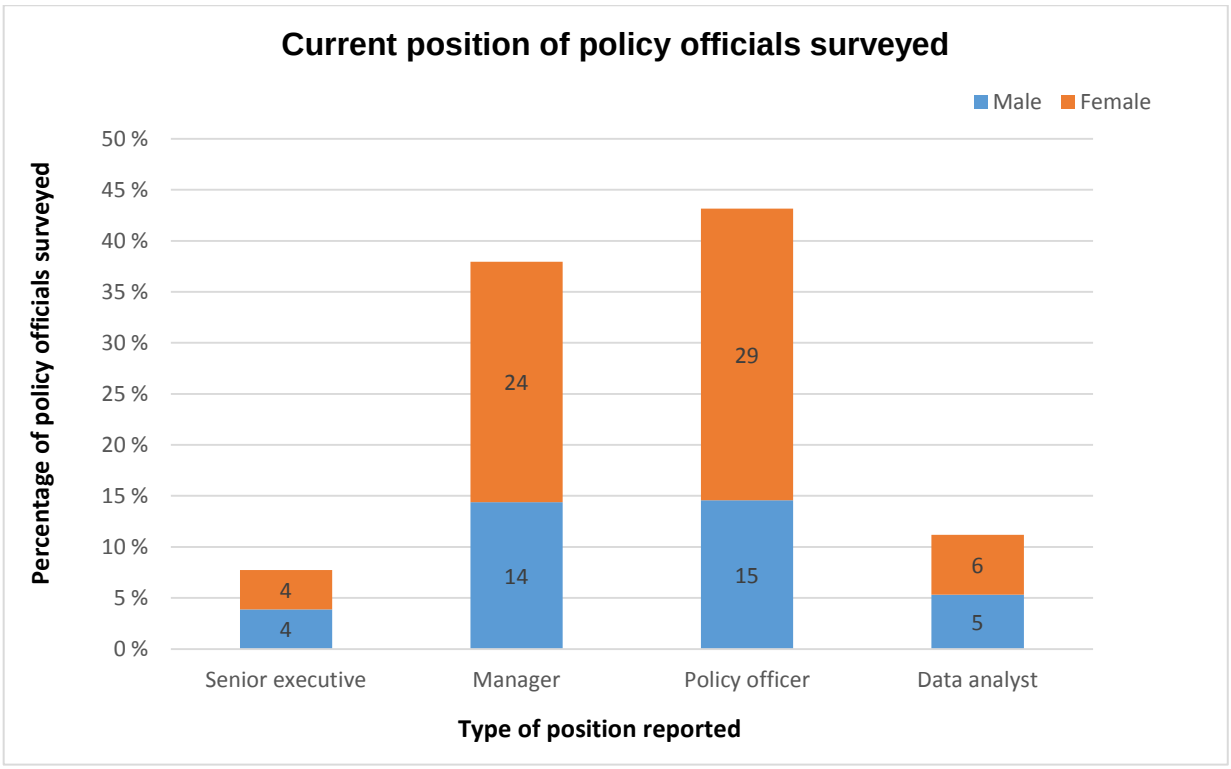
Policy official survey respondents

The policy official survey sample consists of 796 males and 1288 females – a total of 2084 respondents.

A sense of the seniority of participants in the survey can be drawn from data collected around the type of position they reported working in within the public sector. As figure 10 on the following page illustrates, nearly 8 percent of the sample reported working in senior executive positions, and a further 38 percent reported working in managerial positions. Forty-three percent considered that they work in policy officer positions and around 11 percent in data analyst positions. These policy officer and data analyst positions may be across a range of seniority levels, with a base level of APS6 (since this was one of the ARC Linkage project team's criteria for inclusion in the survey). It is entirely possible that at least some of the policy/data positions are specialist ones at a seniority level equivalent to that of managerial colleagues. It is unlikely however that public servants identifying as policy

officers/data analysts would include those employed at a senior executive level. Thus, the seniority of the survey sample seems to predominantly reflect mid-level public sector positions, with none being in junior positions (shaped by survey sampling) and only a minority reporting senior executive status.

Figure 10 - Position held by Policy Official Survey Respondents



The policy officials surveyed came from both Commonwealth and state central and line agencies – with the state respondents drawn from Queensland, New South Wales and Victorian agencies (as outlined in table seven presented previously). Table eight on the following page presents an overview of the level of government, location and role of policy official survey respondents.

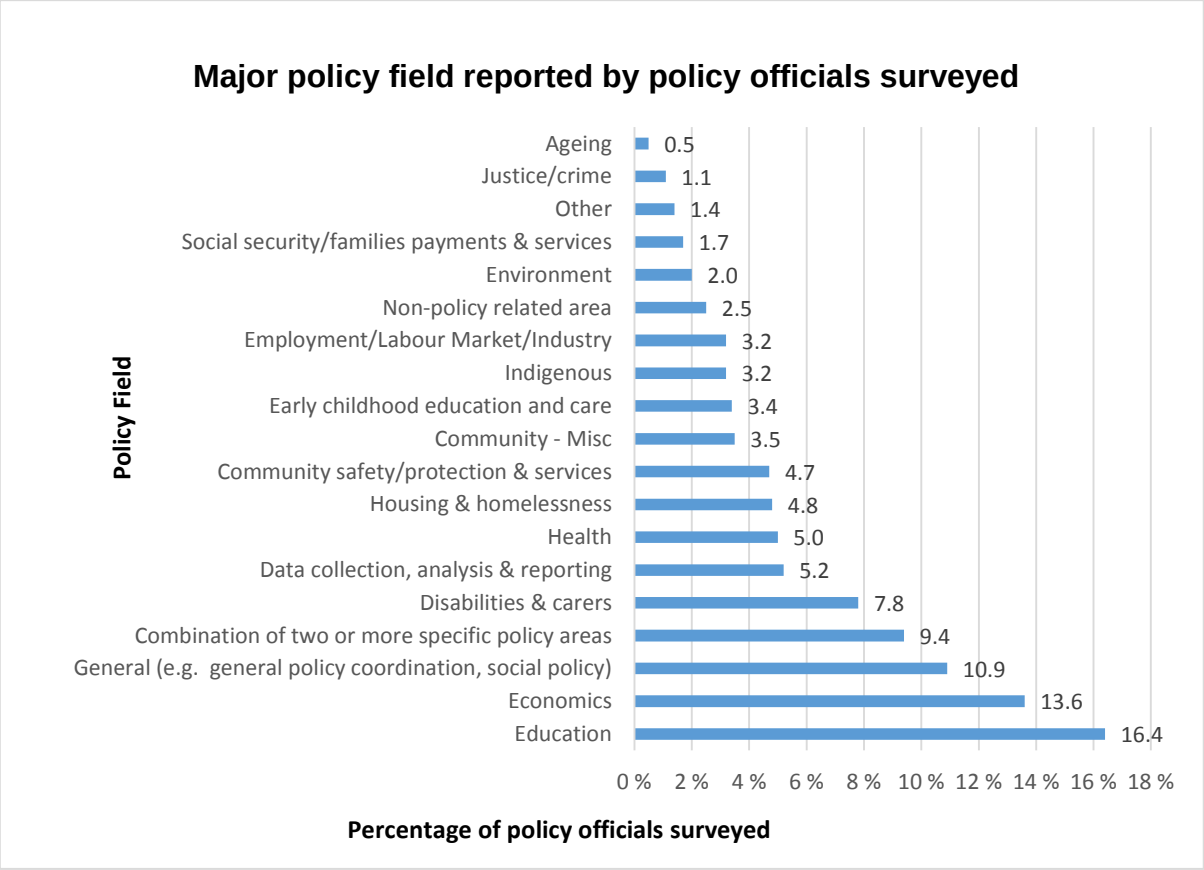
Table 8 - Role of Agency/Level of Government - Policy Official Survey Respondents

ROLE OF AGENCY	LEVEL OF GOVERNMENT	
	Commonwealth	State
Central Agency	20.4%	11.1%
Line Agency	16.3%	52.2%
Total: all agencies combined	36.7%	63.3%*

**Survey respondents by state: QLD – 18.5%; NSW – 15.1%; VIC – 29.7%*

Policy official respondents were drawn from a broad range of policy fields, reflecting the diversity of disciplines represented in the academic survey and interviewee samples. Data on the major policy field in which policy officials reported working is summarised in the figure below.

Figure 11 - Major Policy Field of Work - Policy Official Survey Respondents



In terms of exploring policy official survey respondents' familiarity with, and understanding of, academic environments and research processes, survey data was collected around their level of education (focusing particularly on university undergraduate versus post graduate levels of attainment) and their employment history. This data is presented in figures 12 and 13 respectively below.

Figure 12, reveals that a significant majority of the policy officials surveyed have attained a Bachelor degree level of qualification – with 55 percent of the sample going on to have attained a postgraduate qualification of some description. This finding tends to support observations made in recent literature relating to the more highly educated character of the modern public sector, at least for public servants in policymaking roles (for example, Head, 2015).

Figure 12 - Level of Education - Policy Official Survey Respondents

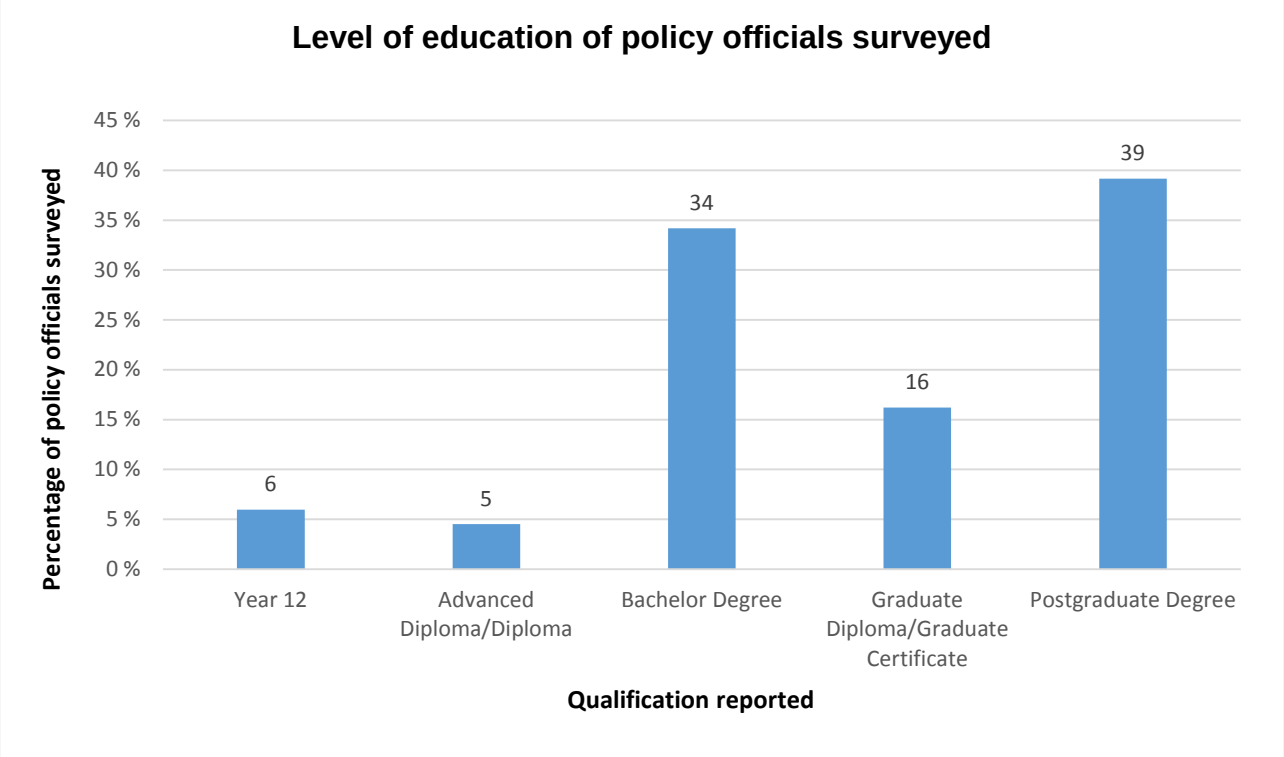
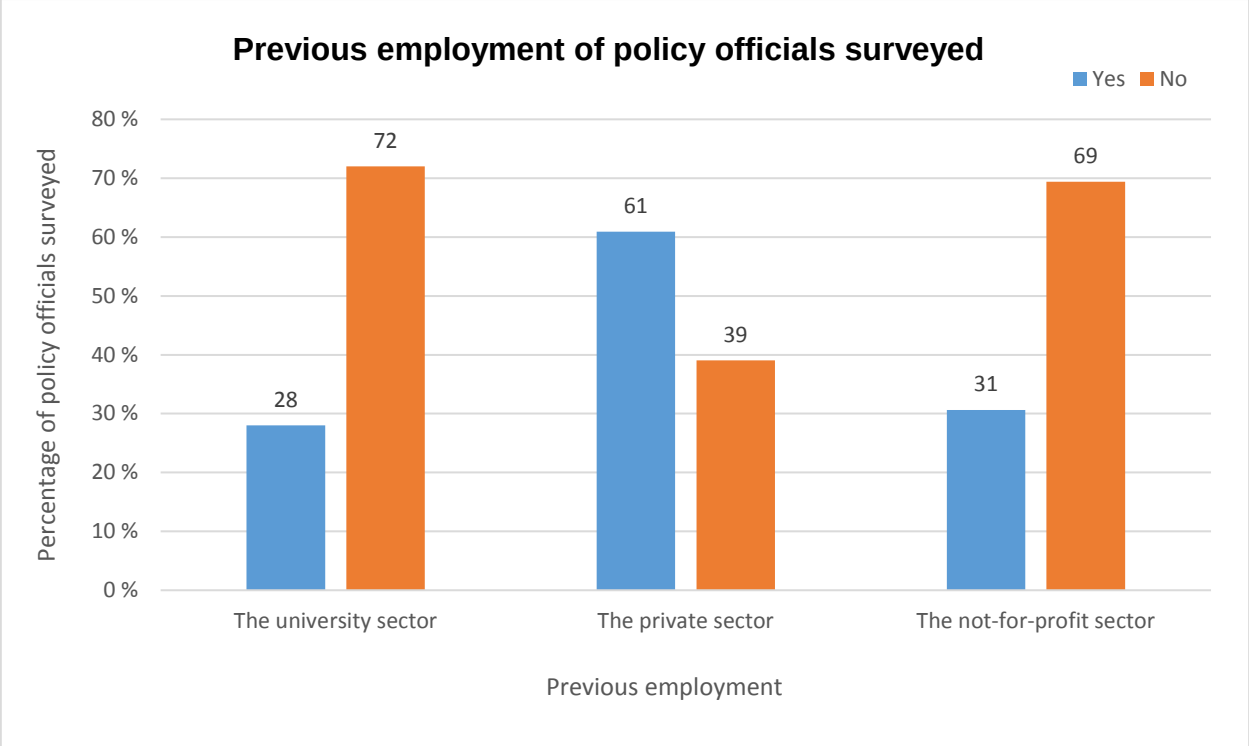


Figure 13, on the following page, highlights that the policy officials surveyed were much less likely to report previous employment in academic institutions or the not-for-profit sector than a history of employment in the private sector. However, nearly a third do report having been

employed in the university sector at some point. This group of policy officials may, as a result, be more familiar with the context and processes surrounding academic research production than those who have not worked in the university sector.

Figure 13 - Previous Employment - Policy Official Survey Respondents



Policy official interviewees

The policy official interviewee sample consists of 73 males and 53 females – 126 respondents in total.

Table nine on the following page provides a picture of interviewees by role of the agency and level of government they were working within. It also provides information on the location of interviewees employed in state government agencies.

Table 9 - Role of Agency/Level of Government - Policy Official Interview Respondents

ROLE OF AGENCY	LEVEL OF GOVERNMENT	
	Commonwealth	**State**
Central Agency	15.1%	20.6%
Line Agency	11.9%	52.4%
Total: all agencies combined	27.0%	73.0%*

**Interviewees by state: QLD - 25%; NSW - 18%; VIC – 30%*

In terms of seniority within the public service, the interviewee group represents a much more senior group of policy officials than the survey sample. The vast majority of policy officials interviewed were either in senior executive positions, such as heads of agencies, assistant secretaries or branch heads. Interviewees other than this tended to be either in specialist advisory roles or working in units with a research production and/or knowledge brokering role within their agency. Interview data was explored to consider the education level attained by the interviewee group. Of the sample, 44 percent reported having attained a doctorate or other post graduate degree and 29 percent reported having attained an undergraduate degree. It is possible that some of the 29 percent had completed education beyond this, but did not report it in the context of their interview. Twenty-seven percent of the sample did not provide any information on their education level. This missing information makes any certain comparisons between the educational profiles of the survey versus interviewee samples unfeasible – but what data is available does suggest that the interviewee group is also well-qualified.

Finally, an attempt was also made to identify the extent to which interviewees had "partnered" with academics. Policy official interviewees did not relate insights or experiences concerning specific relationships or joint projects with academics consistently across interviews. This made it difficult to develop a classification strategy that would enable meaningful statistical data to be generated. However, a firm sense of the sample's experience of working with academics could still be gleaned. A large proportion of the interviewees reported personally working with academics on specific projects and related

aspects of their experiences during their interview. Some policy officials related experiences of projects where they had worked with academics directly in a different role to the public sector role they had at the time of the interview. A number of policy officials reported involvement in a research initiative with academics that was brokered via a third party (for example, they were involved in a project managed by a not-for-profit organisation which took responsibility for supporting both the policy official and the academic partner's contribution). There were also those policy officials who canvassed the issues surrounding EBP in their interviews at a much higher level than that of specific interactions or projects. For these policy officials, interviews focused more on relationships at an agency level or between sectors and the broader contextual issues impacting on these relationships.

As can be noted from the overview data presented above, while those who participated in quantitative and qualitative data collections would overlap to an extent (with some interviewees having been drawn from identified survey respondents), distinct differences in the final profiles for survey and interview samples mean that interview data cannot simply be considered to build on the outcomes of survey data for each group. For example, the overall academic interview sample is more senior and research experienced than the survey sample. Similarly, the policy official interviewees as a group are more senior than the policy official survey respondent sample – and where less senior tend to be in specific research-related roles (such as pivotal staff in research producing and/or brokering units). Thus, it is necessary to consider each data set as a distinct data collection, albeit around related themes, for data analysis purposes.

DATA LIMITATIONS

There are several limitations to the data that underpins my research project. A number of these have already been indicated, both in this chapter and in previous chapters. Others stem from trying to apply data sets with a broader focus to a collection of more specific research questions. This section draws together and lists all key data limitations impacting on my research project. These data limitations need to be appreciated in the context of the methodological weaknesses of the existing research utilisation evidence-base, which are outlined in my previous literature review chapter.

Firstly, as with all such collections, both the survey and interview data were reliant upon respondents' self-reports. These self-reports can be subject to social desirability biases, with respondents potentially presenting more favourable representations of the value of research and its impact. However, as this data involves large numbers of self-reports, collected via different methodologies, and across comparable sources, such biases are far less likely to distort findings than for similar studies involving smaller samples and single data sources.

Secondly, the quantitative data collection for the project involved the use of an online survey. A response rate of just over 30% for the academic survey instrument was achieved.[17] Web based surveys can be subject to low response rates (Sue & Ritter, 2007; Nulty, 2008), with previous studies on research uptake also reporting low response rates amongst their samples (e.g.; Landry et al, 2001a; Landry et al, 2003; Cherney & McGee, 2011; Talbot & Talbot, 2014).

Thirdly, there are limitations around the representativeness of both the policy official and academic samples.

The respondents for the public sector survey were not, and could not, be chosen through strict random sampling. In order to protect the privacy of respondents the public sector agencies which participated in the research project retained contact information for the intended survey respondents. Project contacts within the agencies were provided with parameters for the research and then undertook distribution on behalf of the research project team. As one of the ARC Linkage project team noted, this sometimes resulted in the survey being distributed to as many recipients as possible rather than to a random subset and so "…the sampling technique proceeded more like a census than like a technique designed to produce a statistically representative probability sample." (Newman, 2014, p619).

Similarly, the academic sample was not statistically representative of all academics in Australia. The sampling strategy for this survey, which involved targeting academics who had recorded involvement in either ARC Linkage or Discovery project grants, was an approach that endeavoured to ensure the relevance of the research topic to respondents.

[17] A total number of 693 responses was received.

An examination of respondent characteristics, as outlined previously in the chapter, reveals that the resulting group is constituted mainly of academics who are employed in senior positions (or had retired from these), and as such had already experienced fairly lengthy careers as academics – one apparent bias in the sample that resulted from the sampling strategy.

Sampling methods for each of the data collections, instead, prioritised targeting respondents who would be best positioned to inform inquiry around the enhancement of research impact in policymaking processes – and this approach was successful, with all of the data set sample groups reporting experience in working at the research-policy interface via a range of strategies, including joint projects.

The interview sampling strategies for both academic and policy officials also endeavoured to capture respondents with relevant interest and experience in the research-policy interface to be able to contribute insights into an empirical understanding of the issues and processes around EBP in Australia. As the purpose of the interviews – in line with the broader intent of applying qualitative methods to this type of social inquiry - was to explore themes in more depth to further develop findings obtained via the survey instruments, statistical representation was not a priority in sampling at all (Bryman, 2004). This targeting did mean, however, that both groups of interviewees might be likely to have less to say about the barriers, or significance of barriers, to working at the research-policy interface than colleagues who have not had such experience.

Fifthly, the data was collected over a defined time period, and as such captures “snapshot” perspectives for that time phase. This kind of data collection can be vulnerable to distortions arising out of events taking place at the time of the survey or interview process itself, with these shaping responses provided by research participants such that a picture that is less generalisable to policy contexts more broadly is formed by the researcher. For example, this piece of research took place at a time when a number of participating public sector agencies were undergoing significant rationalisation and restructuring processes – and so the responses of research participants could reasonably be expected to magnify the impact of changing personnel, lack of resources and perhaps even lack of political priority on the pursuit and uptake of research resources in policymaking processes. While some questions were built into the policy official interview instrument to try and capture historical reflections,

there was limited capacity within the data collection process to explore these issues in any depth. The extent to which research conclusions from this work can be considered to reflect the issues around social research use in policymaking across a range of policy contexts over time thus needs to be approached with caution.

Finally, and one of the more significant limitations of the data collection for my research project, involved the design of the data collection instruments. These were all shaped with broader project objectives in mind. Whilst the broader project endeavoured to explore interface/relational issues between academic providers and policymaker users of research, this was only one dimension and not the sole focus for research. As a result linkages/relationships were not well defined and operationalised within the instruments. Also, as the survey instruments built upon similar instruments used internationally to explore EBP, linkage/relationship-related items in the instruments drew on the "two communities" framings that have been predominant in the literature. This might, to some extent, shape empirical inquiry outcomes in this direction. Fortunately, the survey material was followed-up with in-depth interviews, and the methodology for the interviews ensured the flexibility to pursue inquiry around issues or examples respondents wished to highlight. This meant that the interview material became a much richer source of data for understanding the range of relationships respondents considered important, the barriers and facilitators to these, and how different types of relationships could be connected. Whilst the same methodology meant that material was not collected uniformly across all interviews, the exploratory nature of my research project meant that this was a less critical methodological issue for my project.

This chapter will now outline how a mixed methodology design, and how specific data analysis strategies, were adopted to optimise the research conclusions drawn from the data despite these limitations.

A MIXED METHODOLOGY DESIGN

As highlighted at the commencement of the chapter, my research project employs a mixed methodology design, with data analysis involving both quantitative and qualitative data sources to explore identified research questions for the project.

Much has been made in the literature of the inherent tensions between quantitative and qualitative methods, stemming largely from fundamental epistemological differences in the

ways in which data is gathered and considered. There is a history of debate about whether successfully combining the methods is therefore actually even possible (Bryman, 2004; Plano Clark & Creswell, 2008). However, recent texts and scholarly papers suggest that not only are quantitative and qualitative methods compatible, but combining them can actually constitute a desirable method for specific forms of social inquiry. As Tashakkori and Teddlie (2008, p 22) highlight, mixed model studies "…are products of the pragmatist paradigm and combine qualitative and quantitative approaches within different phases of the research process." In a mixed methods context, Ownwuegbuzie & Johnson (2006, p271) suggest that legitimation may act as a proxy for validity: "Legitimation means that researchers draw inferences in a mixed methods study that are credible, trustworthy, dependable, transferable, and/or confirmable." According to this definition, the authors suggest that there are nine possible types of legitimation that may be pursued in mixed methods studies: integrating samples; reconciling insider-outsider views; minimizing weaknesses when combining methods; using an appropriate sequence of methods; scrutinising data conversion approaches; using a continuum rather than dualisms of paradigms, seeking a third viewpoint that is neither pure quantitative or qualitative; and employing multiple validities based on qualitative and quantitative approaches, and political legitimation, in which inferences have value for stakeholders.

The combination of quantitative and qualitative data methods within a single project may involve single applications of a method within phases of a study (for example quantitative methods followed by data collection involving qualitative methods), or multiple applications within phases (for example, data collection that involves close-ended and open-ended response items within the same instrument). Analysis of the data, and the process by which conclusions are drawn, may similarly vary between mixed method studies. Within the context of a pragmatic approach to research design, the quality of research outcomes is best achieved by paying close attention to the fit between research goals and how quantitative versus qualitative research orientations affect key aspects of the research process – such as framing of the research problem, design of the study, analysis and interpretation of the subsequent data (Bryman, 2004; Bryman, 2006; Plano Clark & Creswell, 2008; Greene et al., 1989)

Mixed methods approaches are considered particularly useful where the research issues being explored are complex, the research is exploratory and/or where the data available has multiple limitations. As such it was a highly applicable approach to the nature of my research inquiry and available data sets.

The use of quantitative data sources alongside qualitative data sources can lend more credibility to research outcomes. This is because mixed method strategies such as triangulation and complementarity help to overcome some of the weaknesses of the application of a single method of inquiry (Bryman, 2004). Complementarity in research design enables results from one data collection method to elaborate, enhance or illustrate the results from another, such that overlapping or different facets of a phenomenon can be identified. Triangulation helps to seek convergence of data findings across multiple sources in order to strengthen the validity of a study's findings (Greene et al., 1989). The triangulation techniques available to a mixed methods researcher include data triangulation, investigator triangulation, theory triangulation and methodological triangulation. Many mixed methods approaches involve several of these triangulation techniques. In adopting a mixed methods approach the strengths of one data method are drawn upon to compensate for the weaknesses of other data collection methods within that project. For example, some data collection methods are more efficient for obtaining large scale information - which better enables patterns in behaviours to be reliably identified - but are less able to effectively answer "how" and "why" research questions. Thus, research outcomes are enhanced by using different methods to cross-check, illustrate and extend the outcomes of analysis between data sets.

The mixed methods approach employed in this PhD research project had both complementarity and triangulation intents.

Complementarity was primarily pursued via an approach that drew on the interview data to illustrate and extend the insights evident in the survey data, and vice versa. For example, survey data provided initial information on which linkage factors were relevant to research uptake – which assisted in developing a coding scheme for the interview data. Themes that became apparent first in the interview data were then explored in the survey data.

My research design involved methodological triangulation, via the analysis of both quantitative and qualitative data collections, but also data triangulation via comparisons between what have traditionally been considered supply-side (academic research "producers") and demand-side (policy official research "users") perspectives.

Commonality in identified themes across data sets, or between academic and policy official perspectives, was considered to add weight to the reliability of those identified themes. This is because data analysis strategies that compare and contrast perspectives across quantitative and qualitative methods, and between respondent groups, would have had some impact in mitigating biases, such as self-reporting biases, evident in the data sets.

Where differences in perspectives were noted, the qualitative interview data was drawn upon to suggest possible reasons for these differences.

By drawing on data collected across a large number of academic institutions and public sector agencies with varying levels of responsibilities for policy activities at federal and state levels, this PhD research captured a broad range of contexts and experiences. This strengthens the generalisability of research results in the absence of representative samples for the data sets.

The absence of rigorously defined concepts around linkages in the survey, and to a lesser extent, the interview instruments (due to the broader focus of the ARC Linkage project) shaped the extent to which this data could usefully inform my research activities. This was addressed, to some extent, by research planning work that examined each instrument to consider specifically how each of the items might relate to or inform my research questions. Specific data analysis strategies were then informed by my research planning work. For example, the multiple linear regression analysis models, which were designed to inform the extent to which linkages can be considered significant in shaping research uptake amongst the survey samples, drew on research planning work to include linkage-relevant items as independent variables.[18]

[18] The process for undertaking the regression analyses, including details of the dependent and independent variable measures designed to capture research use and participation in linkages for each of the survey samples, is outlined in more detail in chapter 6 - where the results are also presented and discussed.

Fortunately, the semi-structured/open-ended nature of interview process meant that data for each interview was diverse and lengthy (particularly for policymakers who were drawing on more diverse experiences around research use in the policy process). Thus this material was a very rich source of information and perspectives around linkages and their significance for accessing and applying research. This made it possible to refine definitions for my research and to make better use of the information gathered via a number of items in the survey data. It was also helpful in better understanding the outcomes of the regression analysis. However, this same semi-structured interview process meant that information was then not collected uniformly across respondents. Consequently it was not possible to draw any statistical conclusions from the interview data itself.

The interview sample bias toward capturing respondents with relevant interest and experience in the research-policy interface means that findings around the barriers to working at the research-policy interface may only present a partial picture. Further work needs to be undertaken to explore linkage barriers from the perspective of academics and policy officials who have been unable or are less interested in pursuing this way of working to fully understand the range and nature of impediments.

Given the exploratory nature of my research, I do not believe that any of these unaddressed data limitations significantly undermine the value or usefulness of my research results. The research methodology I applied effectively enabled the maximum pertinent information to be drawn from each data set, with this information being compared and contrasted to build the fullest, most reliable picture possible. Given the gaps in knowledge around linkages, as identified in the previous two chapters, this has meant that a very broad picture of relationship types, processes and barriers was able to be built and documented in this thesis. Further targeted quantitative and qualitative research strategies can now be developed and implemented more readily to continue to develop our understanding of the themes and processes captured in this overview picture.

The chapter will now briefly outline the specific tools and methods I adopted to analyse the four data sets, in order to effectively respond to the research questions I have identified.

METHODS OF DATA ANALYSIS

In line with the mixed methodology approach adopted for my project, various methods of data analysis have been employed to explore my research questions.

In the absence of well-defined concepts around linkages in the survey instrument, the quantitative data was initially used as a starting point for identifying important issues/trends cursorily across a broad and large respondent group. Descriptive data obtained via the survey was collated to suggest the nature of linkage relationships between academics and policy officials, the factors shaping those relationships and reported barriers to linkages. The outcomes of this analysis were compared and contrasted across academic versus policy official perspectives.

The relationship between linkages and research use was next explored via multiple linear regression models, drawing on academic and policy official survey data sets.

As noted above, the semi-structured nature of the interview process meant that resulting interview data proved to be a richer source of information and perspectives around linkages and their significance for accessing and applying research. As such it could be productively interrogated to better understand the nature and function of linkage relationships engaged in, to gain further insights into which factors shape these linkage relationships, and to enable "how" and "why" questions to be explored. Interview data was also explored to identify possible reasons for any discrepancies between academic and policy official perspectives. Qualitative data analysis was undertaken via a thematic analysis approach using Leximancer and NVIVO software tools, which will be outlined in more detail presently.

The survey data was revisited after initial qualitative interview analysis to identify whether the factors and processes identified through interviews were supported via findings from the quantitative data collection.

Finally, qualitative findings were drawn upon to better understand the outcomes of the multi linear regression models.

Analysis of the large volume of interview data was particularly challenging, and ultimately undertaken in a multi-faceted way. Leximancer 4 and NVIVO 10 software, both qualitative analysis tools, were employed to assist with the task of extracting relevant material from the

large volume of data available. A thematic approach to data analysis was adopted for making sense of the interview data.

The thematic analysis of qualitative data can have a number of overlapping purposes. These include systematically observing and/or documenting behaviours or phenomena of interest, identifying and mapping connections between behaviours and/or phenomena, making sense of seemingly unrelated material, and converting qualitative information into quantitative data (Boyatzis, 1998). In order to be able to effectively use thematic analysis for a project Boyatzis (1998) identifies four key stages. Firstly, a theme must identified, which Boyatzis (1998, p 11) suggests involves recognising a "codable moment". The second stage is recognising this theme reliably, which involves identifying that "codable moment" consistently. The third stage is the development of actual "codes" that support reliable coding. The fourth and final stage of analysis involves a process whereby themes are interpreted. This interpretation typically involves the consideration of a theory or a conceptual framework. It is in this way that thematic analysis is best able to contribute to the development of knowledge.

Projection is one of the key obstacles to effective thematic analysis (Boyatzis, 1998) Projecting a pre-existing perspective on to the interpretation of data can distort the process of recognition and coding of a theme, and its interpretation. Projection of evolving perspectives and insights onto data as coding progresses similarly hinders the process of thematic analysis. Boyatzis (1998) advocates that rigour in developing and operationalising codes is critical to avoiding projection. In order to best achieve this, codes should consist of five key elements – a label (or name); a definition of what the theme concerns (i.e. the characteristic or issue that constitutes the theme); a description of how to know when the theme occurs (i.e. indicators on how to "flag" the theme); a description of any qualifications or exclusions to the identification of the theme; and finally, examples of the theme – both positive and negative – to eliminate possible confusion when looking for the theme. These elements support consistency of coding over time and higher inter-rater reliability where multiple coders are working on a project. Strategies such as using inductive approaches to the development of codes, and employing multiple coders on a project to cross-check the interpretation of data, can also be employed to enhance the reliability of thematic analysis findings.

While my PhD project was undertaken in the context of a broader ARC Linkage project, my specific area of inquiry was quite targeted. As such, opportunities for cross-coding checks were limited. Key themes could be compared with those found at a broader level by the ARC Linkage project. Similarly, index coding undertaken by a research assistant for the broader project could also be referred to where relevant.

In terms of adopting a more inductive approach to coding, I employed grounded theory principles to help shape my thematic analysis.

Grounded theory can be defined as theory that has been derived from data that is systematically gathered and analysed through a research process (Corbin & Strauss, 2015). In using this method, the approach to data analysis is both iterative and recursive – with analysis leading to the identification of concepts via coding of the data. These concepts are then examined more closely to detect patterns (e.g. the discovery of indicators for or relationships between concepts) that lead to the documentation of "categories". Exploration of the relationship between the "categories" documented can then contribute to the development of theories. At each point of this process further data may be identified and/or collected and drawn upon to build the category and theory pictures (Bryman, 2004).

One of the key criticisms of grounded theory has been whether it is actually possible to suspend awareness of relevant theories and concepts in the literature until the late stages of the analysis process, such that an analysis is truly grounded (Bryman, 2004). This criticism is particularly pertinent for my project, in that the interview instruments used to collect the data to be analysed were framed to varying degrees by theory prevalent in the research uptake literature. For example, the impact of "two communities" type understandings of the barriers to research impact shaped a number of items in both the survey and the interview instruments. In such instances, these concepts were index coded according to their theoretical underpinnings in the initial stages of data analysis. However, a data driven approach with broader coding of concepts was also applied to identify other concepts, categories and theories that could be drawn from the data - with this inductive approach sometimes resulting in codes and categories that mirrored the theoretically derived codes. This strategy was important for ensuring that pre-conceived notions (based on popular views and tacit understandings) did not dominate the analysis. It also provided

an approach which allowed the checking of the validity of some of these popular perspectives in the context of my project.

The process for coding for this project involved the development of a coding scheme which endeavoured to capture Boyatzis' (1998) five key elements for an effective code, such that each node or sub-node was best operationalised to support consistency of coding. Some examples of codes are provided in an illustrative scheme table in appendix five.

As indicated above, initial elements of the coding scheme for my project were developed as part of the data analysis planning phase for the project, drawing on the literature to identify core nodes and sub-nodes. Manual content analysis of a small sub-sample of each of the academic and policy official interview samples using NVIVO was then undertaken to inductively identify further key codes, by aiming to capture key insights and themes around this project's research questions for both samples. The initial coding scheme framework was then refined via an overview analysis of the data using Leximancer, as outlined below. The coding scheme continued to grow iteratively as part of the coding process itself.

The key process I adopted for enhancing the reliability of my thematic analysis, however, was the use of both Leximancer and NVIVO tools to develop codes and extract data using those codes. This is outlined in more detail below.

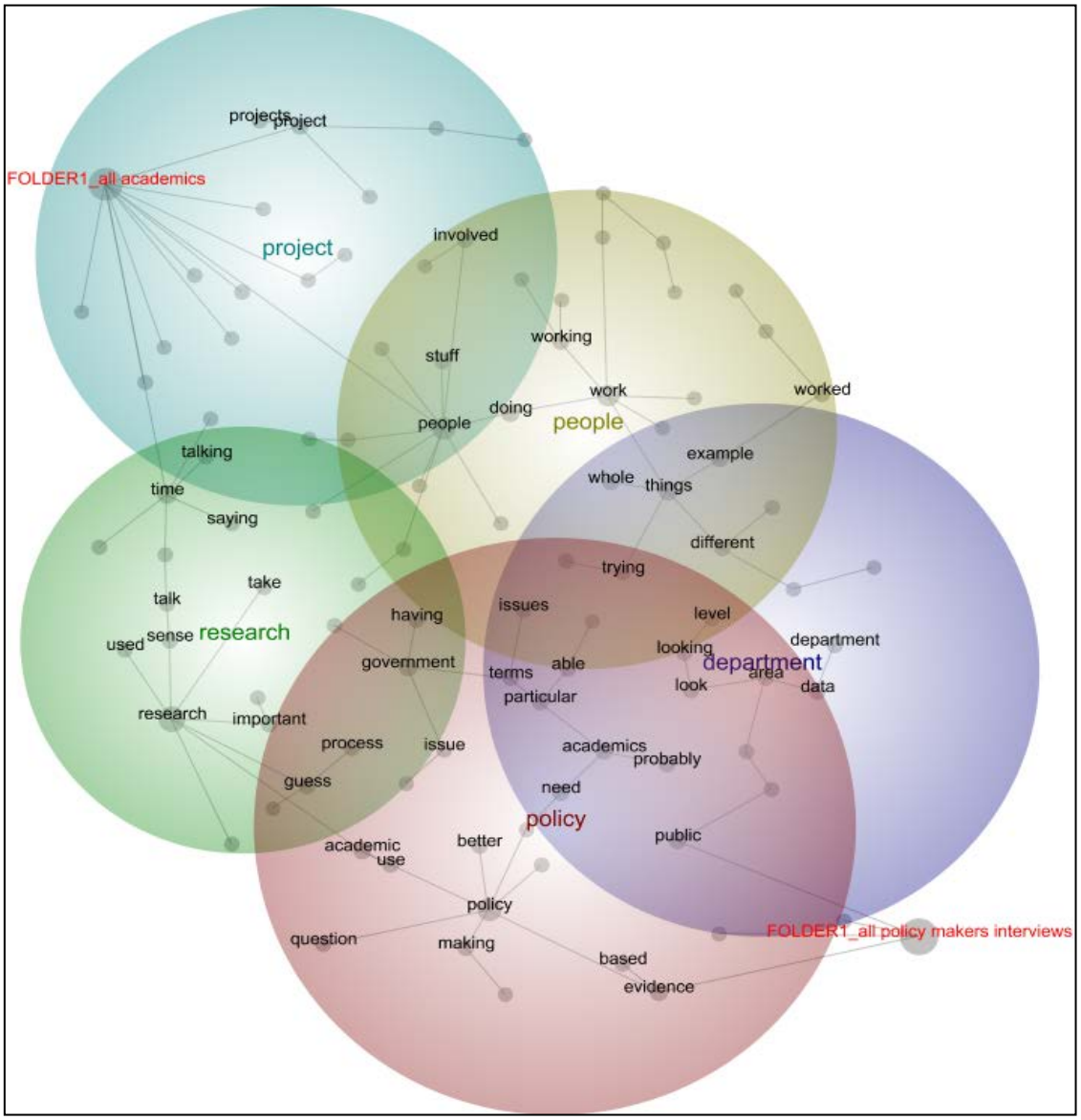
Leximancer Analysis

Leximancer was used as a tool to support analysis for this project in two key ways – in the development of a coding scheme and as cross-check for manual coding undertaken via NVIVO (using key terms) as data analysis progressed.

The Leximancer program uses word-association information to draw emergent concepts from the text. It applies concept frequency and co-occurrence data to compile co-occurrence matrices, and uses a statistical algorithm to create its two-dimensional concept maps. Leximancer provides three key types of information for a data set – the main concepts in the text and their relative importance; the strength of links between concepts (i.e. how often they co-occur); and similarities in the contexts where links between concepts occur (Smith & Humphreys, 2006). This process for analysis of data means that the outcomes of data analysis are more reliable and objective, as researcher bias in coding is minimised.

I started with an undirected exploratory Leximancer analysis for academic and policymaker data sets, which automatically extracted key concepts for each data set from the transcript text entered into the program. A comparative concept map illustrating these key concepts was created, and excerpts compiled by Leximancer to illustrate the concepts were perused. This enabled key themes for the data sets to be quickly identified, and a context for a consideration of linkages to be established. This comparative map is presented in figure 14 below, in order to outline how such mapping is interpreted.

Figure 14 - Comparative Map of Key Themes Across Academic and Policy Official Survey Data



This map illustrates the top 50 percent of concepts that Leximancer found to occur in the interview transcript data – that is those concepts that appear most frequently in the text, and those that are the most connected to other concepts on the map. For the purposes of this exploratory search, the program was asked to find the top 100 concepts in the data. Larger numbers of concepts can be sought, but this can make the map crowded and difficult to interpret. The concepts are clustered into higher-level themes, represented by the coloured circles on the map. The theme names are automatically taken from the top concept within that theme, although they can be manually renamed by the program user if it is felt that there is a need for a more self-explanatory name in using the map to communicate data findings. As this was an exploratory map only, renaming was not deemed necessary for the map presented above. These circles represent concepts that appear together often in the transcript text, as these concepts tend to settle closely to each other on the map. The themes, and thus the circles, are heat-mapped, indicating the importance of each of the themes. The “hottest”, or most important themes, appear in red. The next important theme appears in orange, and so on according to the colour wheel. For this exploratory map the program was asked to compare academic survey data with that of policy officials, and map top themes for each group. The result is that concepts most often found in the policy official interview data are mapped closely to the policymaker interview tag, and the academic interview concepts close to the academic interview tag.

Excerpts of data illustrating these themes, together with statistical information around occurrence of themes in the data is provided as an adjunct to such displays and enables the concept maps to be broadly interpreted in a relatively efficient manner. The map is also interactive within the program, and there are a range of other functions that enable connections between concepts to be explored.

In order to focus more specifically on concepts of interest within the entire data set, in this instance linkage related themes, the next step undertaken was Leximancer profiling. A number of words, drawn primarily from preliminary NVIVO manual content analysis, were used to seed a more focused comparative analysis of the academic and policy official data sets. A Leximancer profiled analysis develops a thesaurus using seeded words (i.e. those inputted by the user) and by using word association to identify related emergent concepts in the text. In this way Leximancer can focus its analysis on specific areas of interest to the

researcher within large volumes of text - in this case a multitude of lengthy transcribed interviews (Povey et al, 2013). It was envisaged that the capacity for Leximancer to identify related concepts within the text might lead to the independent identification of alternative key terms to support more focused analysis of the data (for example, to seed more focused profiling in Leximancer and/or to use to drive text search strategies via NVIVO). However, examination of the results of this profiling revealed that some of these emergent concepts were atypical or not particularly helpful in supporting further analysis. This is an occurrence that has been identified by other Leximancer users (Sotiriadou, Brouwers & Le, 2014). Profiling, however, did prove to be a useful strategy for cross-checking the outcomes of NVIVO text searching and manual analysis. Similar key terms to that identified and used in NVIVO could be profiled via Leximancer, with maps displaying relationships between these terms and Leximancer identified emergent concepts. Further, the excerpts of data illustrating those themes, together with statistical information around occurrence of themes in the data, provided by Leximancer as an adjunct to the concept map could be compared with the outcomes of NVIVO coding.

Leximancer's strength lies in its ability to provide relatively quick visual displays of key themes and concepts across large data sets. The NVIVO tool, on the other hand, supports more elaborate story-telling around themes. Manual handling of the interview data was required to better understand the style and implied tone of interviewee's language and for multifaceted responses to be interpreted. In many instances, discussion of themes was embedded in the interview as part of an involved dialogue between the facilitator and interviewee. Further, this frequently involved the discussion of a "case", which illustrated a number of issues the interviewee wished to highlight. These cases could involve protracted text, which Leximancer would not analyse as a whole, so connections in themes and thus meaning could be lost. The NVIVO program also had the advantage of being a more convenient tool for documentation of interpretations of automatic analysis and subsequent manual handling of data. Leximancer, thus, was largely used to support the automatic profiling and comparative profiling that was used to shape and reliability check NVIVO analysis for this project. The NVIVO analysis strategies employed for this project are now outlined in more detail below.

NVIVO Analysis

As highlighted above, an initial sub-sample of approximately 50 of the total pool of interviews for both academics and policy officials was selected to identify themes in order to develop an initial coding scheme. Much of this data was manually coded. Due to the elaborate nature of dialogue between the facilitator and interviewee, and the use of lengthy case examples across many interviews, this stage involved extracting fairly full pieces of text so that meaning and connections between themes would not be lost. Once enough interviews had been perused, word frequency strategies using commonly used themes could also be employed.

An attempt was made to ensure that the initial sub-samples involved respondents from a range of backgrounds in order to best ensure codes would apply across the data sets, rather than be distorted by specific disciplinary or policy area themes. Initial sampling for manual coding of transcripts endeavored to capture interviews rich in discussion of research areas of interest.

Research questions in themselves shaped some coding structures. For example, as one of the foci of this project was to better understand the facilitators and barriers to linkages, nodes around these themes were created, with sub-nodes pertaining to each identified facilitator or barrier flowing from them. Sub-nodes were also created to map relationships and processes between facilitators and barriers and linkages, and more specifically to research impact as identifiable in the transcripts.

After cross-checking the results of this work with Leximancer analysis to support coding scheme development, further analysis was undertaken using NVIVO. A combination of text searches, using commonly employed key terms could be adopted to extract more detailed findings across the very large data sets. Further manual analysis was also undertaken across the entire data sets to explore specific areas of interest (such as better understanding the higher level relationship themes discussed across the interviews in contrast to more project-specific themes).

Finally, a number of source classifications were also developed for both the academic and policy official interview data sets. These classifications involved characteristics such as gender; seniority; academic discipline; public sector/academic experience; state/territory of

interviewee; role of interviewee; and the interviewees' employment context. These classifications more readily enabled analysis of themes by particular interviewee characteristics. Classifications were undertaken drawing on project contact information spreadsheets; exploration of interview data and internet searches (e.g. drawing on auspice organisational websites to obtain further information on the interviewee's role and position) where this information could not be found within project documents. Survey data could also be drawn upon to check some classification items (such as public sector experience; role of interviewee). This work supported the manual analysis of data from more targeted sample subsets (for example academics with experience working in the public sector).

CONCLUSION

This chapter has endeavoured to provide a context for understanding the findings to be outlined in subsequent chapters of this thesis, by detailing the data sources and data collection processes undertaken, and by explaining the data analysis approach and tools used for evaluating this data.

A total of four data sets are drawn upon for this PhD research project – survey data from Australian academic social scientists, survey data from Australian public servant policy officials, semi-structured interview data from a selection of academic social scientists, and semi-structured interview data from a variety of public servants in social policy roles. Survey and interview data was collected from academics across a broad range of disciplines. Likewise, policy official data was sought from public servants working in a broad range of policy sectors, across Commonwealth and state government settings, and from both line and central agency settings. All of the data set sample groups reported experience in working at the research-policy interface via a range of strategies including joint projects. This reflected sampling methods that endeavoured to target respondents who would be best positioned to inform inquiry around the enhancement of research impact in policymaking processes. In addition to these defining features for the research samples, two key characteristics of the respondent groups are highlighted in this chapter. Firstly, the details provided around educational attainment and previous employment experience point to some overlap of experience and thus a degree of familiarity with each other's work contexts, amongst the academic and policy officials involved in this project. Secondly, the

respondents for each of the data sets mostly reported working in relatively senior roles or having a significant degree of work experience behind them. This trend was more pronounced in the interview samples than that of the survey. While it may represent sample biases flowing from sample selection methods for the project, it also raises questions around why early career public servants and academics may be less involved in work at the research-policy interface.

A number of data limitations were then highlighted in the chapter. Some of those limitations flowed from methodological challenges, which impacted on response rates and sample representativeness. Other limitations arose in the context of my PhD project specifically. These stemmed directly from trying to apply data sets with a broader focus to the exploration of a more specific set of research questions. A key limitation highlighted was that concepts around linkages were not clearly defined or systematically operationalised in any of the four data collection processes. As a result, I needed to operationalise my research concept definitions within the context of existing data sets in order to make the best of the available data.

The chapter then outlined the mixed methodology adopted for my research. This approach was adopted as it is considered particularly useful in instances where the research issues being explored are complex, the research is exploratory and/or where the data available has multiple limitations – all defining features of my project. The use of strategies such as triangulation and complementarity, drawing on quantitative data sources alongside qualitative data sources, was considered an effective way of creating greater credibility for my research outcomes. Data analysis measures, particularly thematic analysis of qualitative interview material using multiple analysis tools, were also employed to create greater confidence in my research conclusions.

Finally, the chapter highlighted how the outlined methodology was considered the most effective for achieving the exploratory aims of my research. The mixed methods approach, and the specific data analysis strategies employed, enabled important information to be drawn from four large scale data collections uniquely focused on social research production and its impact on policy in Australia. Given the extent and nature of gaps in knowledge around linkages, it was important that my research approach enabled a wide-ranging picture of relationship types, processes and barriers to be built and documented in this thesis.

Having now detailed the data sources, research methodology and analysis strategies, this thesis now turns to presenting my key research findings. These are structured across three separate chapters - with data analysis findings that provide a picture of the types of linkage relationships academics and policy officials report engaging in and why, identified barriers and facilitators for linkage relationships, and material that specifically focuses on how linkages are significant in shaping research utilisation forming a specific focus for each of the chapters. Chapter four, the next chapter, builds on the more general profiles for each respondent group presented earlier in this chapter, by presenting specific linkage-related data for each group. This data is expanded on via an exploration of qualitative data sources – in order to build on this picture, as well as to understand the factors and processes that might shape linkage preferences.

CHAPTER 4 -TYPES OF LINKAGE ACTIVITIES

INTRODUCTION

Chapter two of this thesis outlined how the role of linkages in the uptake of research has often been considered significant in the literature. The importance of linkages for the impact of research has been supported by a number of research studies (for example Cherney et al, 2012; Innvaer, Vist, Trommald and Oxman, 2002; Weiss, 1995; Lomas, 2000; Landry, Amara & Lamari, 2001a, 2001b; Landry, Lamari and Amara, 2003). However, chapter two also highlighted how our understanding of exactly what linkages are and how they influence social research use is still in need of refinement (Cherney et al, 2012; Nutley et al, 2007). Despite the fact that there is some recognition in the literature that there are different types of relationships that influence research transfer and uptake - ranging from hands-off models to intense collaborations (Nutley et al, 2007; Ross et al 2003) - very little work has been undertaken to empirically map these different models or relationship forms, or to consider the ways in which specific forms might influence research uptake. A more nuanced understanding of the types of linkages policy officials and academics engage in could provide greater structure for exploration of the role of linkages in research uptake (Lomas, 2000; Nutley et al, 2007; Ross et al, 2003).

This chapter commences by presenting a "typology" of linkages, which has been derived from the empirical literature as well as an analysis of data sources for this project. This "typology" captures the broad range of connections and relationships that are referred to in using the term "linkages". It also provides a framework for understanding discussion about preferred linkages to be presented later in the chapter.

The chapter then details more specific findings around the linkages that academics and policy officials report participating in, and documenting when and why they might prefer some relationship types over others. It is probably important to highlight here that while participation patterns and preferences for newer, and evolving kinds of linkage relationships are identified in this chapter, my thesis draws on "snapshot" data which may not fully convey the extent to which they are engaged in and preferred at the time of writing this chapter. Knowledge brokering and the use of social media to facilitate interaction between academics

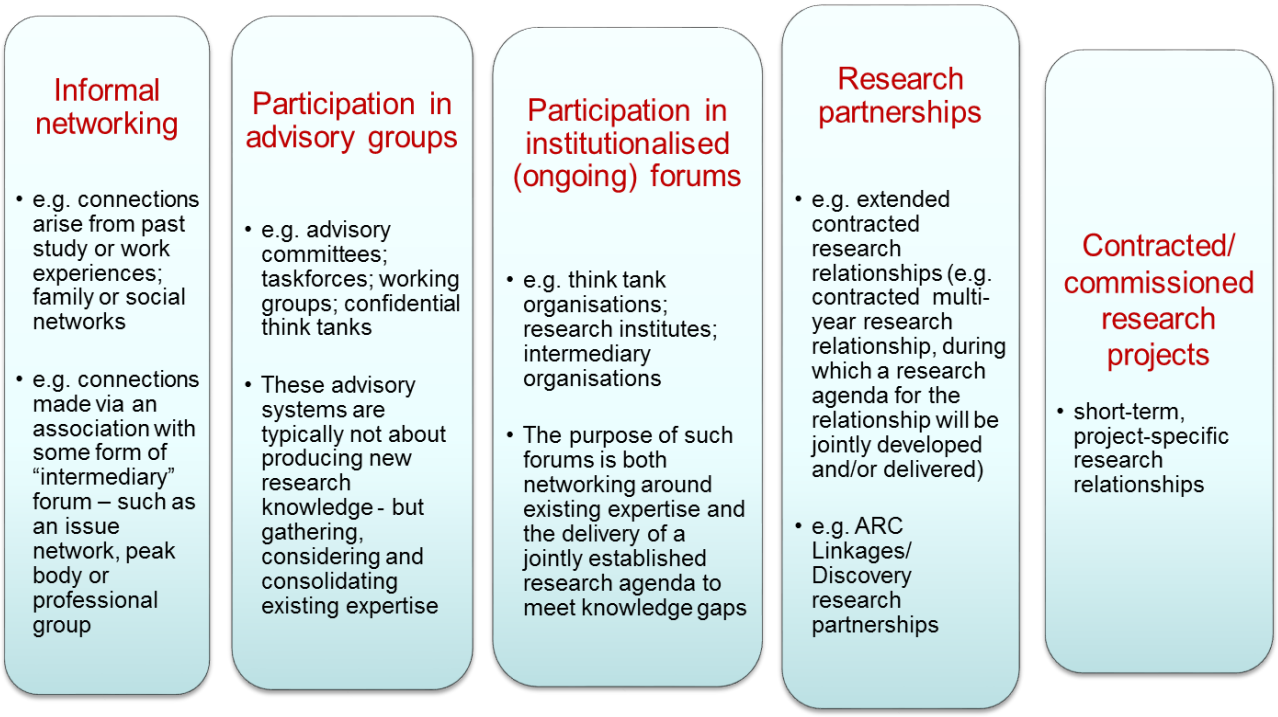
and policy officials are both examples of linkage strategies that have become more commonly relied upon, and appear to be continuing to grow in popularity, since data was collected for my research.

Finally, the chapter considers the extent to which participation in different types of linkages might be context-dependent, with factors such as the role and functions of employing agencies, policy or disciplinary contexts, or even location, playing a role in shaping linkage participation and/or linkage preferences.

"TYPOLOGY" OF LINKAGES

By drawing on the empirical and an analysis of survey and interview material around the nature of linkage relationships that academics and policy officials report participating in (to be presented in more detail in the next sections of this chapter), a "typology" of linkages can be created. This "typology" provides a figurative structure for portraying the broad range of specific connections between academics and policymakers that support research mobilisation. The linkage types outlined in figure 15 on the following page range from informal, networking focused interactions (with this networking centred on creating access to academic/research derived expertise) to interactions highly focused on the production of particular research outcomes. The degree of structure and formality around expected outputs from the relationship tends to intensify the more the focus of the relationship becomes a specific research product. While illustrated as distinct types, the data presented next in the chapter suggests that academics and policymakers may participate in several types simultaneously and/or move between types over time.

Figure 15 - Linkages "Typology"



A wide range of linkage arrangements were identified via an analysis of the data sources for this research project, as is readily apparent in the typology diagram presented above. The chapter will now turn to summarising the types of linkages policy official and academic research respondents reported engaging in, and their perspectives on the perceived importance of the different linkage types they identified.

LINKAGES REPORTED BY POLICY OFFICIALS

Quantitative findings - linkage activities engaged in and their perceived importance

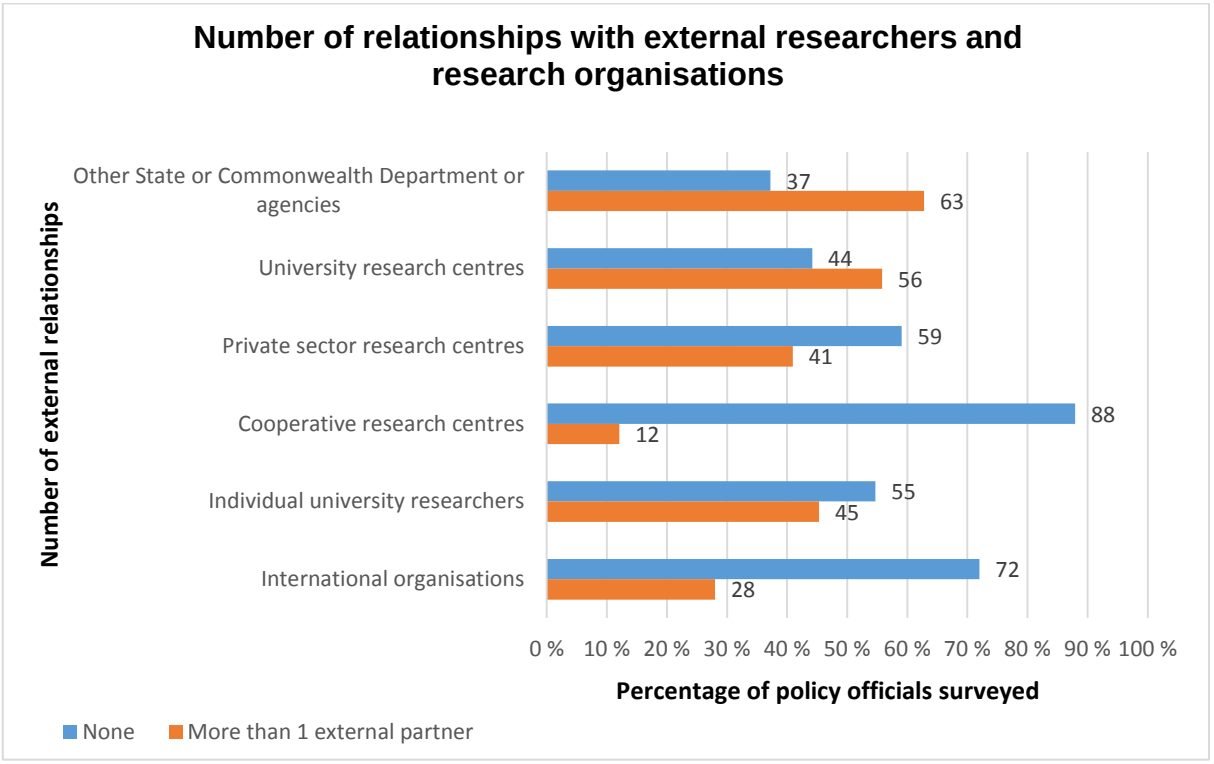
A number of survey items were designed to explore the nature and relevance of linkages between policy officials and academics, and in doing so provide insights into the types of linkages policy officials engage in.

Policy officials were asked to report on the number of relationships/partnerships they have with a variety of external researchers and research organisations. Information on relationships with private sector research centres, co-operative research centres and international organisations was sought, as well as specifically with university research

centres and individual university researchers, as these organisations have the potential also to be key providers of academic research products.

Figure 16 below illustrates that while policy officials report more departmental relationships with other state or Commonwealth departments, relationships with university research centres and individual university researchers were the next most prevalent. This data not only provides evidence for the existence of linkages between policy officials and academic researchers, but indicates that academics are quite important sources for accessing research to support policy work.

Figure 16 - Relationships with External Researchers/Research Organisations – Policy Official Survey Respondents

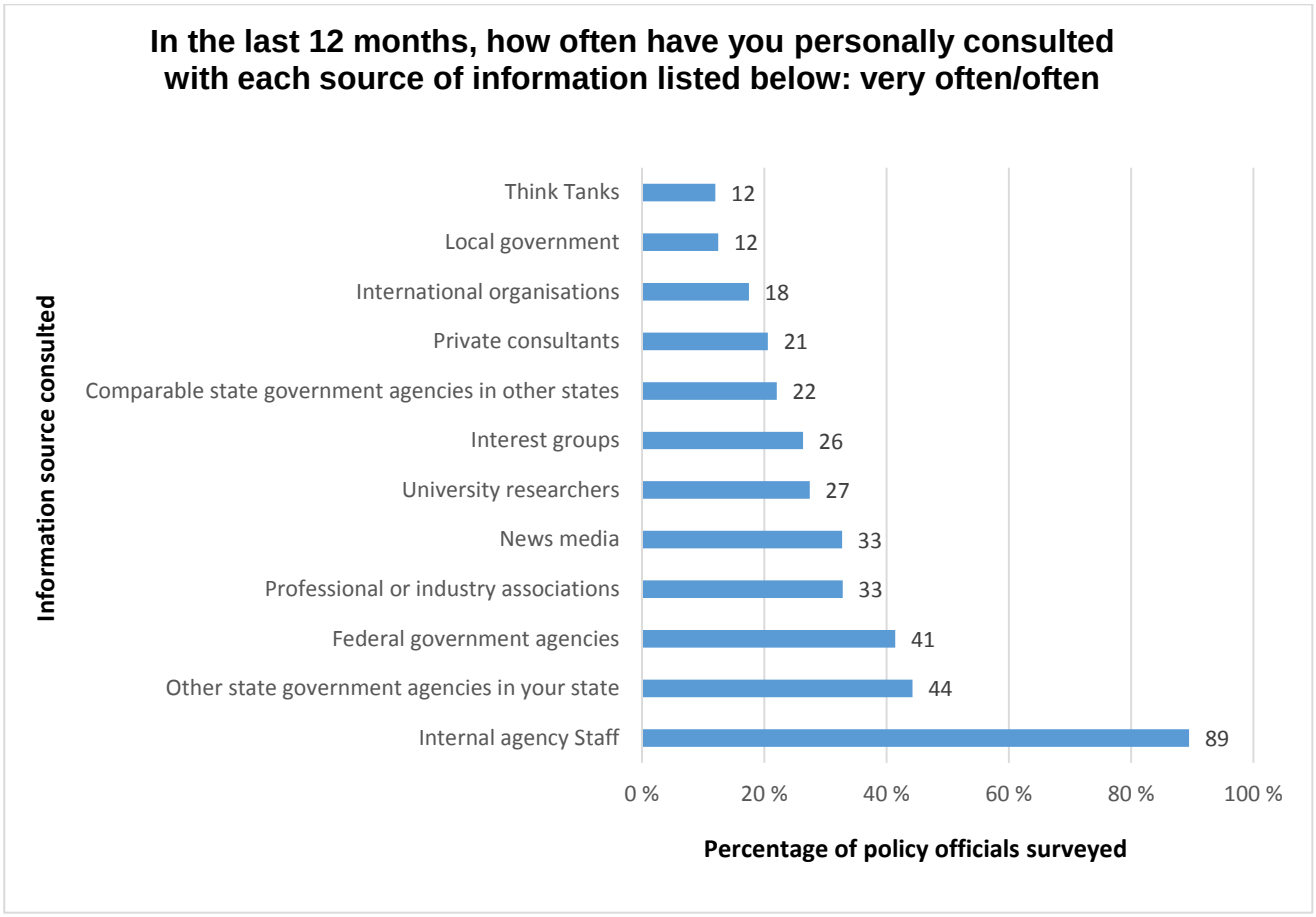


The survey then endeavoured to obtain more specific information about individual policy officials' personal contact with a variety of research information sources. The results of this inquiry are illustrated in figure 17 on the following page. Only 27 percent of policy officials reported personally consulting with university researchers often or very often. However, apart from professional and industry associations and the news media, they were a preferred external source of research information across the policy official sample – and preferred over "like" departmental sources that were not local (i.e. comparable state government

agencies in other states). This percentage is lower than the rates of linkage activity suggested in figure 16, but the survey item leading to the data outlined in figure 17 asks for personal activity, whereas figure 16 captures linkage activity in the department more broadly. A rate of 27 per cent of "often/very often" consultation could actually be considered to be quite a high level of personal linkage activity given the range of responsibilities and tasks that most policy officials responding to the survey could be expected to undertake during the course of carrying out their work roles.

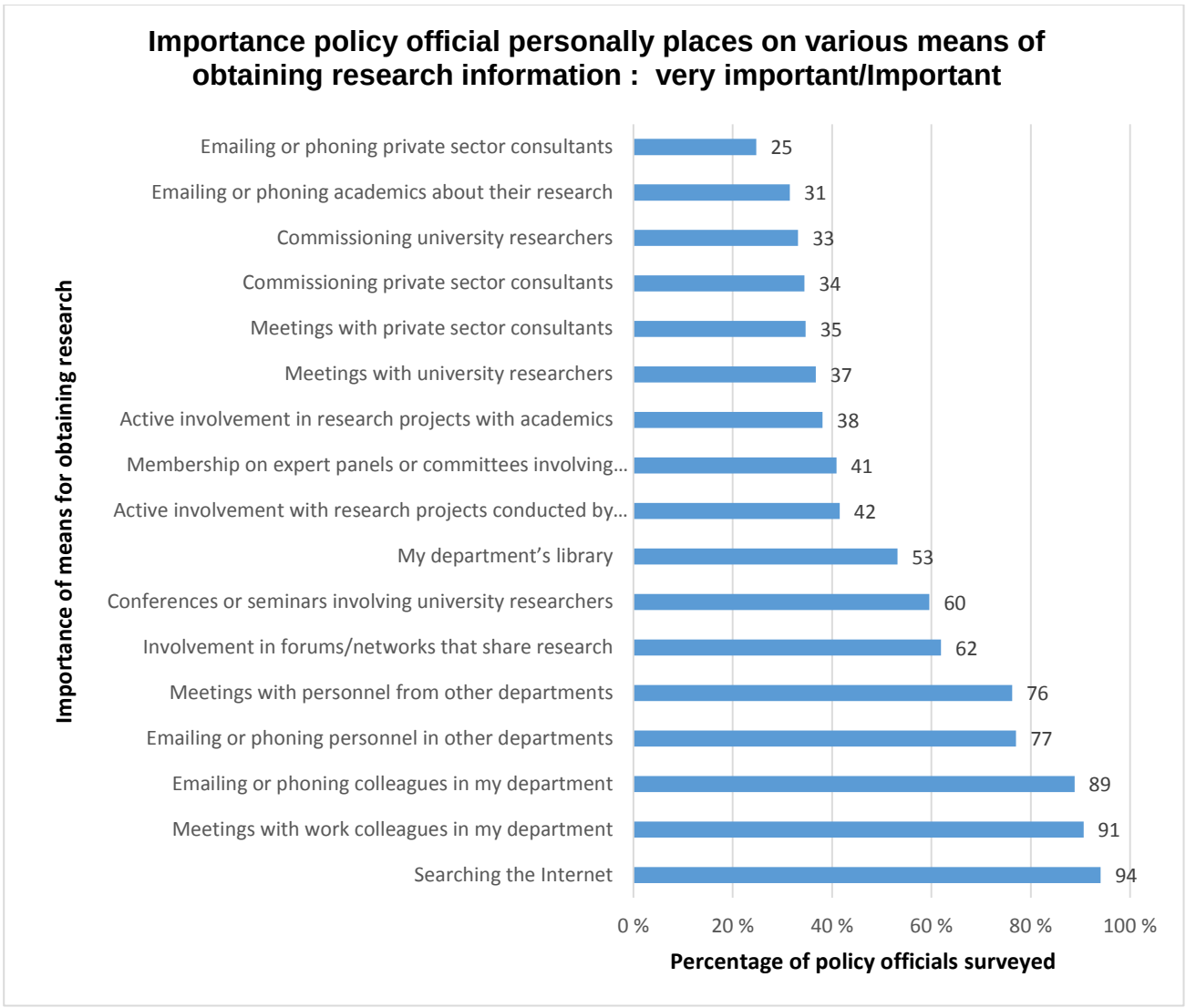
Both charts, however, suggest that policy officials would most often consult with internal or "like" information sources (such as other local departmental agencies). This reflects prior research findings, which observed that public sector agencies were often distrustful about relying on external sources of expertise, preferring to draw on internal expertise and analyses instead (Hall & Jennings 2010; Lester 1993).

Figure 17 - Personal Consultation with Internal/External Sources of Information - Policy Official Survey Respondents



A survey item that provided some insight into the types of linkages policy officials reported engaging in was one that captured the importance policy officials personally placed on specific strategies or activities for obtaining research information. It is likely that policy officials rated reported strategies/activities as important or very important as they have proven themselves to be effective ways of obtaining research in practice. The results of this survey item, outlined in figure 18 on the following page, also reflect a preference for obtaining research information from internal sources over external sources. Further, the more passive strategy of using the internet to access research material was ranked as the most important means, no doubt because this approach is time efficient and will quickly reveal material that is readily available. What is most interesting about the results from a linkages perspective is that a range of interactive strategies are reported by the policy officials as important/very important for accessing research from academics– including more commonly noted linkage activities such as emailing/phoning academics (31%), commissioning university researchers (33%), meeting with university researchers (37%) and active involvement in research projects with academics (38%). However, these activities were considered less important across the survey sample than some other less recognised relationship types where policy officials and academics are likely to interact – such as membership on expert panels or committees involving researchers (41%), participation in conferences and seminars involving university researchers (60%) and involvement in forums/networks that share research (62%).

Figure 18 - Importance of Various Means for Obtaining Research - Policy Official Survey Respondents



Finally, in designing the survey it was recognised that a number of departments have created specific knowledge brokering positions, whose role it is to collate and disseminate relevant research information to support policy work within their department. These positions can be a way of focusing and streamlining relationships with academic and other providers of research products – and can make it less necessary for individual policy officials to have direct personal contact with academic researchers. As such, a number of survey items endeavoured to capture the existence and use of these positions. Figure 19 on the following page reveals that 49 percent of policy officials surveyed were aware that they had someone within their department who could be considered a specialist research knowledge broker. Figure 20 illustrates that of those who reported that they did have someone in this

role, 41 percent used this resource from time to time and a further 32 percent a few times during the year. A further 26 percent of those aware of departmental knowledge brokering staff reported making more frequent use of the broker than this. These results suggest that linkages with academic research producers brokered by specialist positions within departments are a commonplace linkage type for accessing research – and may be as valuable as contracting arrangements are for producing research.

Figure 19 - Awareness of Departmental Research Brokering Staff - Policy Official Survey Respondents

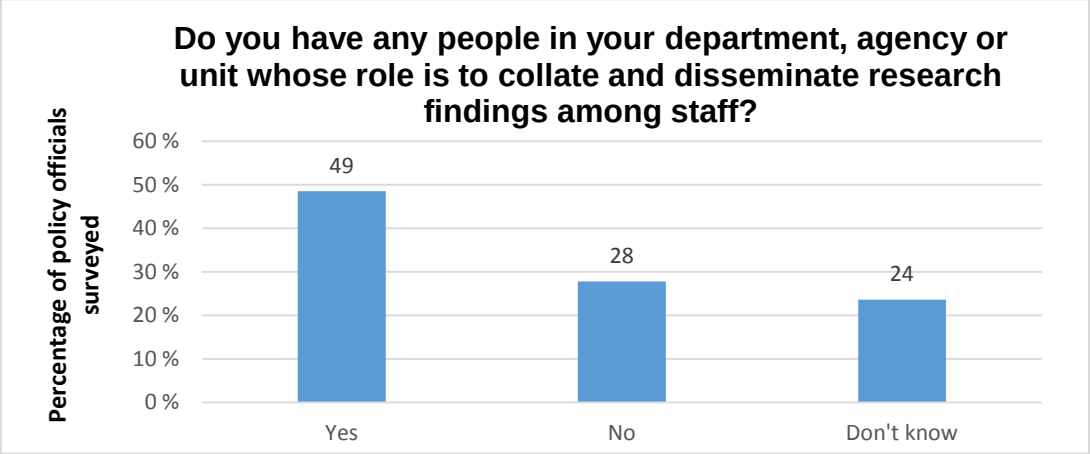
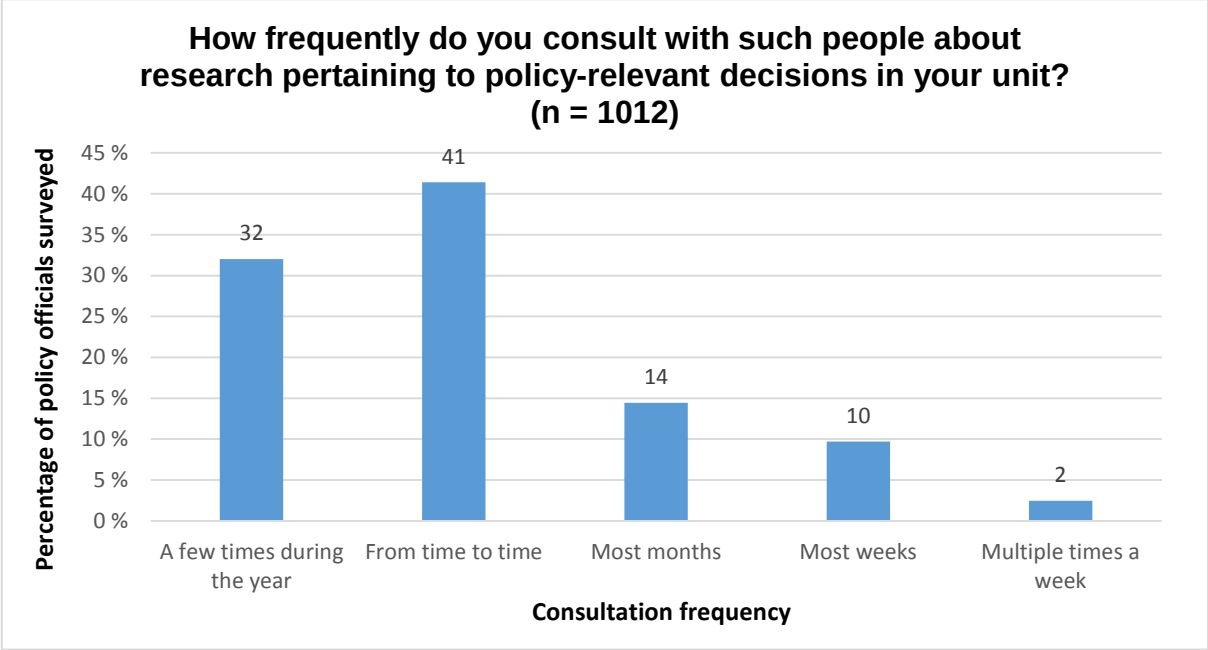


Figure 20 - Use of Departmental Research Brokering Staff - Policy Official Survey Respondents



These quantitative findings will now be explored in more depth via a consideration of qualitative material around linkage types gathered during the interviews undertaken with policy officials.

Qualitative findings - linkage activities engaged in and their perceived importance

While the quantitative data above provides a general picture of the extent to which linkage activities with academic researchers are engaged in, and considered important by policy officials and their organisations, they do not provide much insight beyond this. The qualitative data sources were, thus, explored to build a more detailed sense of the participation in linkage activities that policy officials' frequently discussed across their interviews. Policy officials cited a wide range of ways of relating with academic producers of research. These included formal and informal, as well as direct and indirect, ways of connecting with researchers – with relationships fluctuating in kind and intensity depending the nature of research needs over time, and on the opportunities that presented to build existing or make new connections.

Range of relationship types

A broad range of relationship types were noted by policy officials in the interviews. Relationship types included informal and ad hoc strategies, such as phoning and emailing relevant academics and chatting informally to academics that were part of the policy officials' own personal networks.

They also included more formal contracted project arrangements and research partnerships, such as those supported by ARC Linkage funding. Interestingly a number of policy officials highlighted the evolution of new models within their departments to manage research project contracting and partnership arrangements. These models, typically involving either panel arrangements or ongoing structured partnerships, formalised relationships with academics. In doing so they aimed to achieve broader reach into the academic research sphere, ensure probity and help to sustain longer-term relationships with academics. Further, they were viewed as specific strategies for transforming contracted research relationships into more co-productive research relationships – with many policy officials observing how contracted research arrangements alone were insufficient to guarantee policy relevant, co-produced research outcomes. These types of models for partnership were considered particularly

important in supporting the development and maintenance of longitudinal research products. Some of the more frequently cited relationship types are discussed in more detail below, starting with these panels and partnership models.

Panel arrangements to support research contracting

A number of policy officials highlighted how their department had put in place panel/approved provider arrangements to better support research contracting with academics and other research providers. The aim of these arrangements was to reduce the ad hoc nature of selecting research contractors, to have greater transparency around departmental research needs and priorities (such that research providers could be better positioned to understand and target their research efforts), and to support ongoing connections with a broad range of research providers. Adoption of these panel/approved provider arrangements is illustrated in the policy official comments outlined below.

> *"What changed, just a couple of years ago, was that the department decided to come up with a [research and evaluation] panel arrangement, so put it out to tender…anyone who wanted to be listed on the research and evaluation panel could apply to do so and they would go through certain amount of vetting." (PSFC113)*

> *"There are processes we have within the department. We've got an approved provider list for academic research…" (PSQW27)*

> *"…so we've got a research committee, which all the Dep Secs are on – I'm chair – plus our authorities – and so we have a process of delineating those priorities. We publish them on our website...It helps researchers know…" (PSVE53)*

Partnership arrangements to support contracting

Several policy officials described new research partnership arrangements being pursued by their department or across departments. These partnerships were developed with key research providers, and were designed to replace the repeated, but previously ad hoc contracting arrangements historically sewn together via informal goodwill. The partnerships typically involved a cross-departmental committee or panel to consider research priorities and oversee the research partnership, funding arrangements that can extend over multiple years with less specific outputs, specific processes for joint research activity planning over the course of the partnership and a broader range of reporting and research end products. The key benefits of this approach were considered to be the more iterative nature of the

research process, a greater flexibility to be responsive to research needs as they arise over the course of the partnership, the capacity to take advantage of new research opportunities as they arise and the ability to better customise research products to fit research needs. For example:

> *"So we've moved completely away from a contractual arrangement to one that is a partnership arrangement and we've set it up so that we've got design teams and the findings are shared quickly. So you're not waiting for the end of a project. We don't do lengthy reports. We do presentations and so it's a different sort of engagement strategy." (PSVE63)*

> *"We had an existing relationship with the centre, in that we give them ongoing funding for research purposes…We have relationships with a number of universities, where the research branch in our department has ongoing research agreements with a number of the universities." (PSVE11)*

> *"So we use the…Institute to do research work for us, under a – I think it's a three or four year funding agreement with the department. They do a series of "buckets" and we sort of work out which ones you want to do, and put in our own ideas." (PSFE107)*

Involvement in committees, panels and other forums

Policy officials noted the importance of being involved in committees and experts panels, and the role of professional/industry associations. In addition, they reflected on attendance at conferences and seminars. Participation in committees and involvement in professional associations industry groups were largely considered helpful linkage strategies. For example:

> *"…it's a professional association if you like, but has lots of linkages with the academic community and has functions across different universities et cetera, so it's more of a networking environment. They have debates and those sorts of things, so again just by being associated with those sorts of associations gives you opportunities." (PSQW25)*

However, attendance at conferences and seminars did not appear to be considered as important a linkage strategy as quantitative data gathered via the survey might suggest. A number of policy officials cited issues such as the cost, accessibility, time commitment involved and overly broad or disparate foci for conferences as key barriers to their participation in conferences - and thus suggested that conference forums had limited effectiveness as a means for creating and sustaining key linkages. For example:

"I think too many conferences are too fragmented…with lots of little individual papers. I think…that's not guaranteed they will be helpful." (PSPC69)

"Yeah, it's not seen as a priority…There's a lot of…scrutiny about how much is being spent on conferences, seminars. That's not seen as a good thing and a value add thing. It's seen as an indulgence." (PSQC49)

Participation in research dissemination seminar sessions specifically designed for and targeted towards policy officials was considered a more time efficient and effective relationship strategy – but these seminars needed to be local or easily accessible for policy officials to take full advantage of the opportunity. For example:

"I think…that those networks and those forums are incredibly useful. But they have to be delivered in a tight timeframe. They have to be delivered locally. Or if they can't be delivered locally they have to be delivered on line – with a real view to…how do you maximise participation at minimal cost?" (PSQW24)

Participation in knowledge brokering networks

Participation in formal knowledge brokering/information sharing networks as a key strategy for acquiring and shaping policy-relevant research products was particularly highlighted, with a number of different brokering networks or organisations being cited as examples of how effective these relationships can be. Some examples of this are illustrated in the policy official comments below.

"In Australia, as you would know, there's the Australian Housing and Urban Research Institute [AHURI] that's a network of research academics… It churns out on an annual basis a volume of research evidence and that volume of research evidence is very important to different jurisdictions. How it is developed is that it has involvement with the funders, who are government…So there's a constant relationship – not just at one point in time when you develop a strategy – and the research is there, available." (PSVC31)

"…the Ageing Well Network, which was model the Commonwealth set up, which was to sort of bring together practitioners…to try and bridge the relationship with policy…There was an example of a colloquium that we had where we – and they had a series of these – where they brought researchers together with policymakers." (PSVC35)

"I think probably their [ARACY's] main strength…is around providing that network of researchers and experts geared towards a common goal...and through that influencing the government's agenda and policy by presenting good strong evidence." (PSFC113)

Informal and formal relationships and moving between these

Many policy officials suggested that informal relationships with academics were prevalent and could be key pathways for knowledge between academia and policy spheres. For example:

> *"Certainly my manager has a broad network of academic relationships. My colleagues in the team who have come out of academia…they have broad networks as well. That certainly assists the ebb and flow between government and academia." (PSVC32)*

> *"I think the majority would be informal contacts, in terms of you come into a role and there would be someone who would know that person. Over time some of those relationships evolve into a longer term situation…" (PSVC35)*

> *"I think a lot of it initially happens informally, so networks are important, incredibly important. If you've got a question and you know there's an expert in a particular university, the first thing might be just a phone call and a chat, and start scoping out some ideas. You might recognise a need for something within government, but you want to start talking to people just to formalise what that might look like before it even becomes a formal request for research." (PSQW27)*

However, responses also highlighted that informal relationships are likely to be insufficient in themselves to achieve research influence in policymaking. A number of reasons were cited for this insufficiency, including the need for research to have gravitas within a policy context in order for it to have impact, the need to ensure probity in a policy context and the need to have control around the process where policy issues are sensitive. These reasons are highlighted in the policy official comments outlined below.

> *"…Probity considerations will always cause me to engage with academic partners in a formal way where there is a transaction of public funds. Having said that, I do have a pretty strong network of academic colleagues that I interact with on a more informal basis." (PSVC37)*

> *"I think if something was very, very sensitive in terms of data analysis government would be more inclined to go with a contractual relationship where there was no possibility of publication." (PS3)*

Longer term linkages are most effective

Perhaps the strongest theme evident in the policy official interviews relating to relationship types, was the widespread emphasis on the need for longer-term relationships for linkages to be effective in supporting EBP efforts:

"I think that if you're going to do evidence-based policy then you need to establish long-term relationships with researchers". (PSAB81)

The policy officials who highlighted this offered a number of reasons shaping this perspective. Firstly they considered that lengthier relationships were needed to build sufficient "common ground" and trust to be built between partners. For example:

"We know human relationships as well, in terms of collaboration, there's a lot of trust and respect that needs to be built. That takes time." (PSCVC31)

"Good networks produce solid work…forming relationships takes time." (PSVC31)

"It's longevity…two things I think create the environment. One is the conversation is not pitched on today's funding agreement. It's pitched in a long term relationship around common interests on an issue. So once you abstract the funding element you actually create a more conducive environment for people to come at these issues in a very long term way." (PSFC124)

"So there's a constant relationship, not just at one point in time when you develop a strategy and the research is there, available. It's a process and there needs to be trust and networks developed over time. There needs to be the time required for the policymakers to become intimate with the research knowledge, to understand the deep nuances around different contexts." (PVC31)

Secondly, longer term engagement with academics around policy issues – and particularly a focus on research relationships that support extended cohort research – was considered very powerful for "building the case" research activities and outputs. Such joint efforts impact on policymaking conceptually and better support the tactical uses of research in policymaking. This perspective is captured in the policy official comment below:

"The longer term engagement, and those issues that are continually highlighted and bring evidence, especially powerfully, from a policymaker's point of view are cohort analysis - cohorts and longitudinal data sets, that sort of stuff - is actually extremely important. It doesn't get drawn on anywhere near as much as it should, nor is it supported as much as it should, but it's really - it's very, very manageable. It has played quite a strong role, and I think will continue to, certainly in terms of making a case for a policy, that it doesn't - and garner an interest, I think, from ministers and the sector. Building the case. It's much more effective in building the case than in actually securing the policy position." (PSPC51)

Longer term relationships between academics and policy officials may be best supported via institutionalised knowledge brokering models. Several policy officials highlighted how these are particularly effective models for supporting historical/ongoing engagement – for example:

> *"I'd say certainly the significant historical and ongoing engagement with particular research communities by a range of different models has had an influence. So for instance, wording of the Australian Institute of Family Studies and the Australian Housing and Urban Research Institute and [Urban] Research in Australia and the Social Policy Research Centre in University of NSW and of course, the Linkage projects with University of Queensland. That's just some examples of where we know that strong research partnership has actually influenced policy direction." (PSFC120)*

In summary, the policy officials surveyed and interviewed reported that they participate in many different types of linkage relationships to support them to access, translate, commission and co-produce research. These relationships range from informal, networking focused interactions (with this networking centred on creating access to academic/research derived expertise) to interactions highly focused on the production of particular research outcomes. However, perhaps of most importance is the quality of the relationships between policy officials and researchers, with those that have been built-up and maintained over some time being considered the most effective for supporting the impact of research in policy processes.

LINKAGES REPORTED BY ACADEMICS

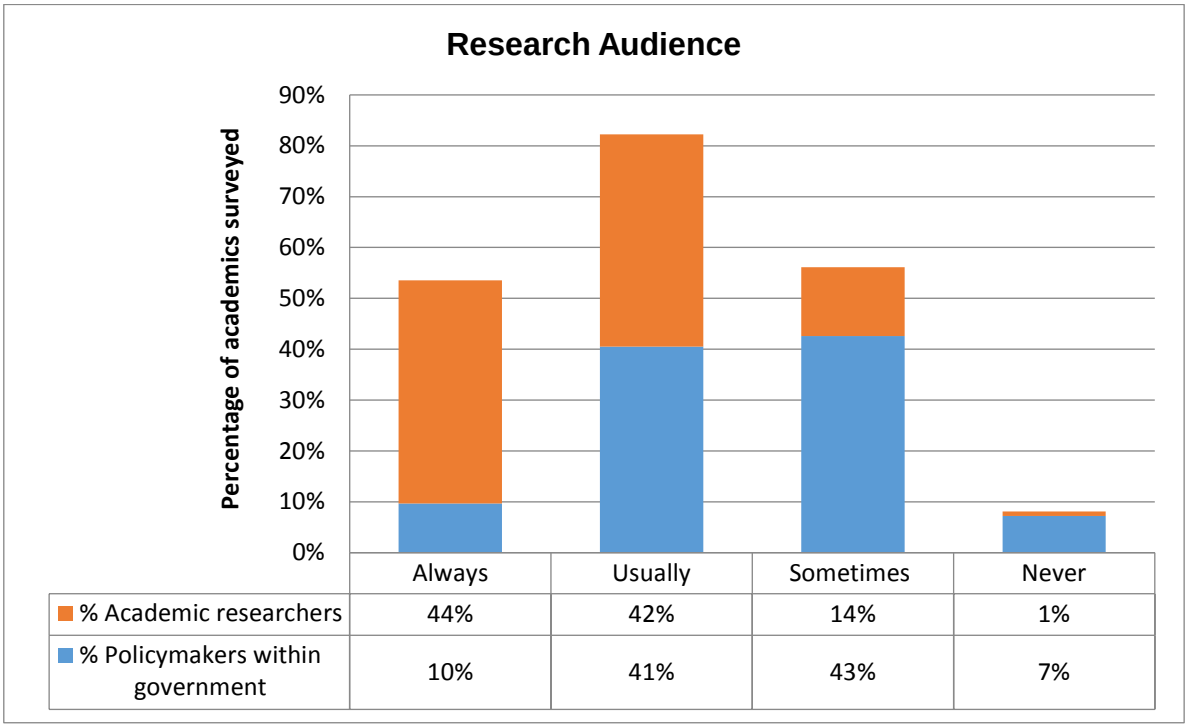
Quantitative findings - linkage activities engaged in and their perceived importance

Survey results were initially examined to determine the nature of academics relationships, whether academics considered linkages were important, how they are important and to identify specific research activities where linkages might play a particularly useful role.

Before moving on to the task of identifying linkage types, the survey data was reviewed to consider the extent to which participating academics were even interested in targeting their work towards policymaking audiences, as compared with the more traditional focus of disseminating research outcomes to academic audiences. An item had been included in the survey instrument to capture this information – it also explored research targeting to public sector practitioners and private sector stakeholders. The findings around policy official vis-a-vis academic research targeting are illustrated in figure 21 on the following page. Unsurprisingly targeting to academic audiences is a dominant focus for research dissemination activities – there are many organisational and institutional imperatives that would make this a core work priority for most academics. However, the fact that 10 percent

of the academics surveyed reported they would always target policymakers with their research outcomes, and a further 84 percent do so usually or sometimes, would suggest that the policy uptake of their research is also an important priority for this group. This is likely to act as a significant driver for developing and sustaining connections with policy officials.

Figure 21 - Research Audience Targeted[19] - Academic Survey Respondents



	Always	Usually	Sometimes	Never
% Academic researchers	44%	42%	14%	1%
% Policymakers within government	10%	41%	43%	7%

In terms of understanding the actual types of linkages that academics would participate in, the survey instrument contained several items that provided some insight. These involve items that target relationship structures, as well as items that aimed to explore the perceived importance of certain types of relationship activities. The findings for these items are outlined below. Qualitative interview data is then drawn upon to better understand these numbers, and to identify other kinds of linkage activities academics are engaged in that were not captured by the survey.

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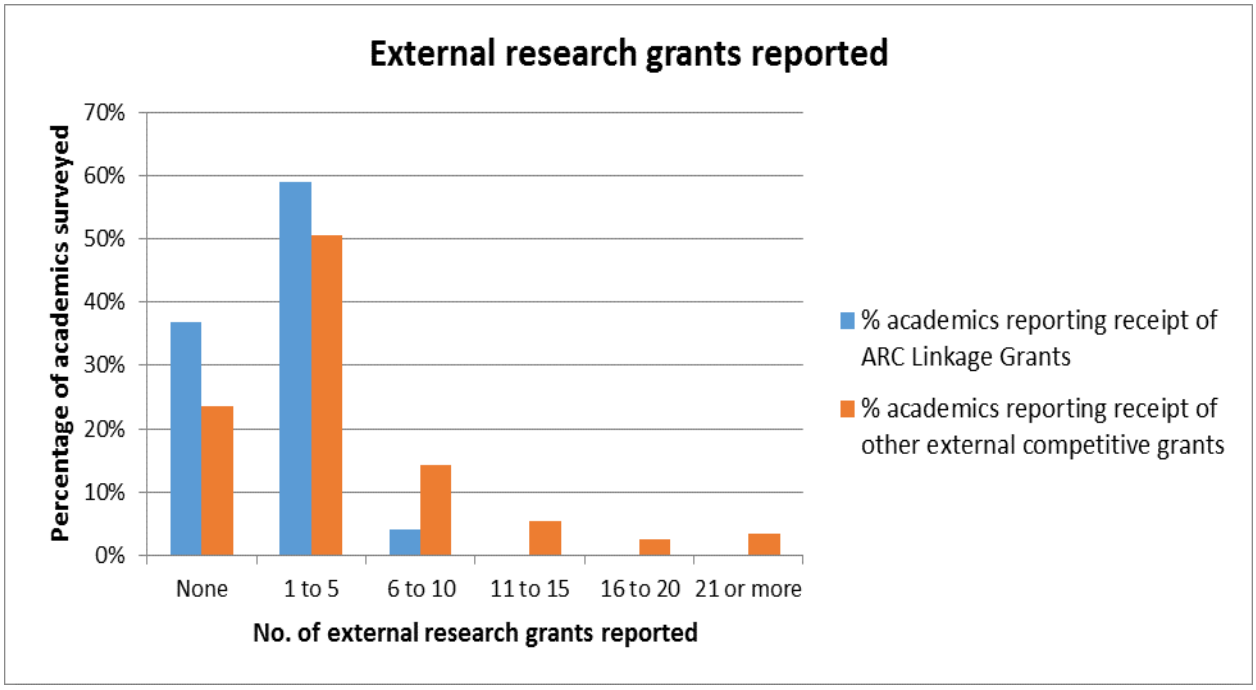
[19] Figure 21 reports selected findings from responses to academic social scientist survey item 14, "To what extent is the majority of your research directed towards the following audiences"

Academics were asked to report on the numbers of ARC Linkage grants or other external grants that they have received. This provides an indicator of the extent and nature of contracted research relationships with external partners. The figure below illustrates the proportion of the total survey sample who report having had or not had ARC Linkage grants or other external grants to produce academic research. As can be expected due to the survey sampling approach, over half of the academics surveyed reported having received at least one ARC Linkage grant. However, 76 percent of those surveyed - a greater proportion again - reported receiving at least one other external research grant. The majority of the survey sample thus has some experience of undertaking contracted research with external research partners, with there likely to be a range of arrangements for funding, structuring and carrying out these projects.

Figure 22 - Receipt of Research Grants[20] – Academic Survey Respondents



[20] Figure 22 reports findings from responses to academic social scientist survey item 9, "Please indicate the number of research grants that you have received"

The academics surveyed were then asked to report on the number of partnerships they had with a variety of external organisations – including Commonwealth, state and local government agencies. The outcomes of this survey item are illustrated in figure 23 on the following page.

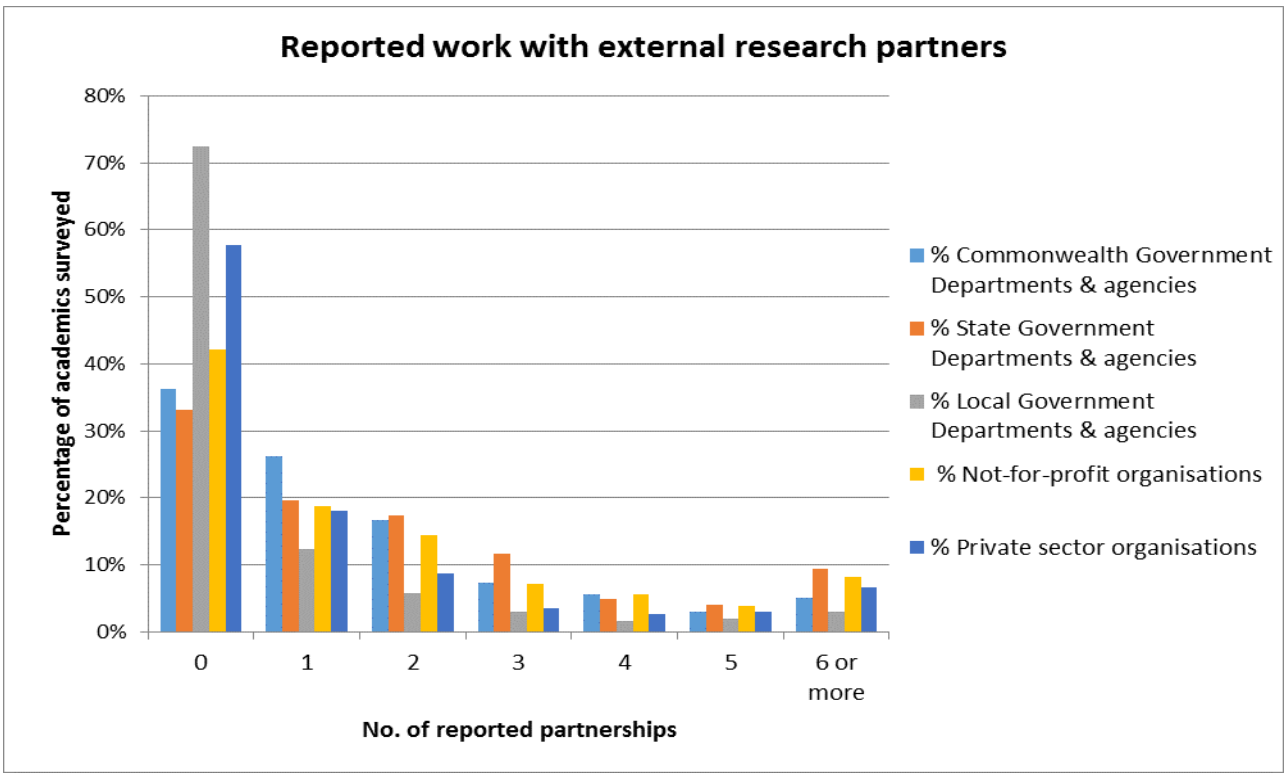
The graph clearly illustrates that most academics reported having only small numbers of research partnerships with external departments/agencies/organisations.

Research partnerships with Commonwealth and state government organisations were the most commonly reported. Sixty-four percent of the academics reported having at least one or more research partnership with a Commonwealth department or agency, while 67 percent reported one or more research partnerships with a state department or agency.

The next most reported research partnership was with a not-for-profit organisation, with 58 percent of the academics reporting one or more partnership with this group. A research partnership or partnerships with private sector organisations were reported by 42 percent of academics. Research partnerships with local government were reported least often - only 28 percent of academics reported one or more partnerships with this type of organisation.

It is important to note that these patterns around the focus of research partnerships may be somewhat influenced by the ARC bias of the sample, and not just reflect a picture of more common research interests amongst academics and Commonwealth/state government research partners. It also must be highlighted that the data only provides information on organisational level partnerships – assumptions about the numbers of individual relationships required to form and sustain these partnerships cannot be made from this survey item.

Figure 23 – External Research Partners*[21] *- Academic Survey Respondents

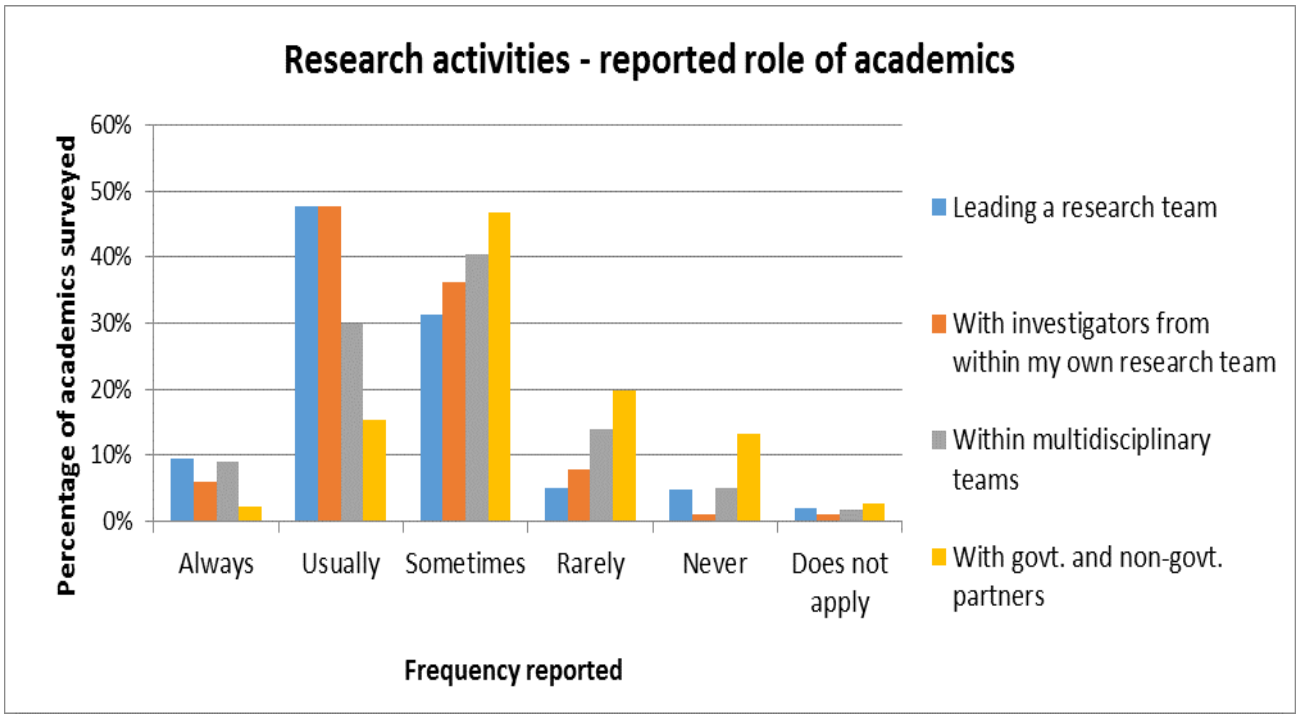


The survey then moved on to ask academics about the roles they adopt in carrying out research activities in order to provide a more in-depth picture of partnering activities. Roles considered for this survey item were leading a research team versus working as a sole investigator. The survey item also explored whether research was more likely to be carried out within the academics' disciplinary area or within multi-disciplinary teams, and whether partners from government and non-government institutions were actively involved in research activities with academics. The outcomes of this survey item are illustrated in figure 24 on the following page. Results indicate that academics frequently lead research efforts, typically with other academic investigators – and these research efforts often involve multi-disciplinary teams. Active government/non-government research members of the team were reported as a "sometimes" research project arrangement by 47 percent of academics

[21] *Figure 23 reports findings from responses to academic social scientist survey item 10, "Please indicate the number of external research partners with whom you have worked"*

surveyed, with a further 17 percent indicating this occurred more frequently. Only 15 percent of those surveyed indicated that they rarely or never worked with government and non-government people when carrying out research activities.

Figure 24 - Research Partnering – Role of Academic Survey Respondents[22]

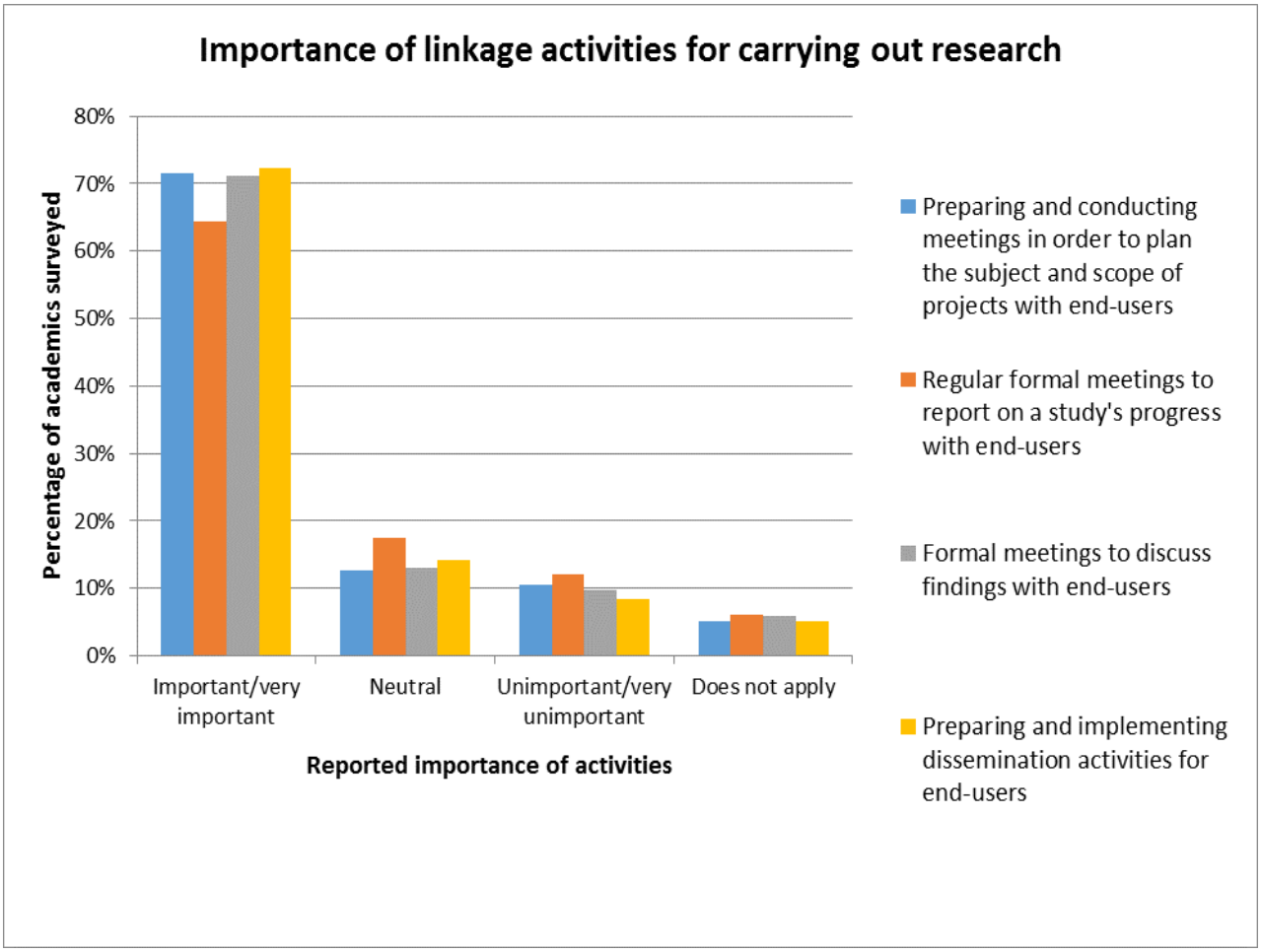


The nature of specific linkage-related activities considered important for supporting research partnerships was then explored via the survey findings. In figure 25 on the following page, most of the academics surveyed reported that linkage activities are important or very important across all phases of a research relationship. For example, 72 percent of survey respondents indicated that preparing and conducting meetings in order to plan the subject and scope of projects with end-users were important/very important activities for them. Regular formal meetings to report on progress with end users were considered an important/very important activity for 64 percent of respondents. In terms of dissemination strategies, 72 percent of survey respondents rated informal contacts with policy personnel

[22] *Figure 24 reports findings from responses to academic social scientist survey item 11, "In what role do you generally carry out your research activities?"*

or government agencies as important/very important methods for presenting and discussing research, 72 percent viewed formal meetings to this end as similarly important/very important, and 60 percent rated participation in seminars and workshops organised by government policy agencies as important/very important forums for disseminating research findings.

Figure 25 - Carrying out Research - Relative Importance of Linkage-Related Activities[23] for Academic Survey Respondents



In table nine on the following page, the nature of activities that are considered useful in disseminating research products to government end-users involved in policymaking are

[23] *Figure 25 reports findings from responses to academic social scientist survey item 17, "Please indicate the importance of the following activities for carrying out your research"*

outlined in more detail. These activities range from passive, non-interactive ones (e.g. publishing; distributing reports) through to more interactive strategies (informal relationships; participating in seminars; giving formal presentations). The results suggest that most of the academics clearly prioritise a range of activities for disseminating their research, including direct communication with policy officials where this is possible. Publication in refereed journals, however, was considered the most important strategy for disseminating research by those surveyed.

Table 10 - Importance of Methods for Disseminating Research[24]

Dissemination Activity	Important / very important %	Neutral %	Unimportant / very unimportant %	Does not apply %
Informal contacts with policy personnel of government agencies	72%	13%	8%	7%
Participation in seminars and workshops organised by government policy agencies	60%	20%	13%	6%
Presentations to parliamentary committees	28%	28%	19%	25%
Sending reports to government policy agencies	55%	21%	12%	12%
Sending reports to parliamentary committees	27%	31%	19%	23%
Publication of articles in refereed journals	92%	5%	2%	1%
Participation in radio and/or television shows	50%	33%	12%	5%
Publication of articles in non-academic outlets	60%	27%	10%	3%
Publication in electronic media, e.g. blogs & other social media	25%	34%	31%	10%

[24] Table 10 is derived from selected responses to academic social scientist survey item 19, "How important have the following methods been for presenting and/or discussing your research?"

Qualitative findings - linkage activities engaged in and their perceived importance

The quantitative data above outlined above provides a general picture of the extent to which linkage activities with policy officials are engaged in and considered important by academics, but does not provide much insight into the character of participation in specific linkage arrangements. Thus, qualitative data sources were explored to get a more detailed sense of participation in key linkages and to begin to consider what shapes academics' preferences for being involved in various kinds of activities. Academic respondents cited a wide range of ways of relating to policy officials in seeking to enhance the influence of their research. These included formal and informal, as well as direct and indirect, ways of relating. They frequently reported taking part in a number of different kinds of relationships with policy officials over the same time period – with these multiple relationship types commonly involving the engagement of the same policy official people in different ways. Most academics also indicated that their participation in different types of linkages fluctuated in kind and intensity depending the nature of their research activities. The opportunities that presented to build existing or make new connections also helped to shape linkage participation.

Range of relationship types

Even though the sampling for academic interviews employed by the ARC Linkage project had emphasized ARC-funded research relationships, a broad range of other relationship types were noted by academics in the interviews. These linkages reflected those identified via the survey instrument, as presented earlier in this chapter. Relationship types included informal and ad hoc strategies, such as chatting informally to policy officials that were part of the academics' own personal networks. Other linkage types included more formal and structured project arrangements such as engagement in consultancies, grant driven research arrangements, and an assortment of other research partnerships. Involvement in a variety of government or university/research centre driven research forums, panels or committees was highlighted across the interviews. Further, a number of academics also outlined relationships with policy officials that were built or sustained via forums that are independent of both academic and policy official settings, such as participation in sector or industry-based groups and events, or involvement in independent knowledge brokering

organisation activities. Key themes around these relationship types are outlined in a little more detail below.

Partnership arrangements to support contracting

A variety of project arrangements to support funded research were raised by academics in the interviews. Nearly all of the academics interviewed noted participation in contracted/consultancy forms of research relationships.

A sampling strategy that centred around participation in ARC-funded research projects led to some reflection around this particular type of research arrangement by many academics in the interviews. It was most interesting to note that despite formal arrangements for these projects being similar across projects (i.e. as they are shaped by structured guidelines for the respective funding programs), academics reported that the actual ways in which the projects operated could be quite different between projects, and even across the same project over time. Academics suggested that these projects tended to be most successful when there was a joint commitment to research outcomes and joint ownership of the research process. This did not necessarily mean academics and policy official partners spending equal time on all tasks, but all parties being engaged, having a mutual understanding of the process and their respective roles, and actively contributing their unique expertise to the project as it progressed.

Academics also outlined a variety of alternative contract/consultancy arrangements to support research around policy issues. These arrangements could vary from small, time-limited specific projects to grant arrangements supporting larger pieces of research work.

Numerous academics suggested that smaller project contracts could often be undertaken in the context of a longer history of projects – with academic and policy partners therefore having an established relationship. Some considered this history to have evolved into a "partnership" of sorts – although not necessarily one that was formalized.

Several academics outlined and discussed more formalized research partnerships, with some of these also being allocated specific funding to support research activities. This funding tended to be tied to research goals rather than specific activities or projects, and underpinned by a formal/contracted agreement between research partners (eg. five years seems to be a common time frame). The partnership may have involved one or more public

sector bodies - and the university/research centre involved may have contributed funding/in-kind resources to the partnership as well. Specific research activities were likely to be jointly decided over the course of the funded partnership via a committee/panel mechanism. The academics suggested that there had been a recent resurgence of interest in, and recognition of the value of, these types of research arrangements by some policy partners – with government efficiency measures making these arrangements mostly cease to exist for many years in recent times. For example:

> *"My management of the process is – there's a certain scheme run by [departmental name removed] that provided general funding for specific projects and you're supposed to go in and you talk with a steering committee and you get a range of people come in who listen to you and provide your comments, which is good from a diverse range of backgrounds, that's wonderful. These people do feed into the steering committee and were providing the comments, but it's coordinated within the contract group and so you don't have to necessarily incorporate all the contradictory advice." (ACA40)*

> *"For quite a few years we've seemed to have sort of outstanding contracts with…. [departmental name removed] – which involved – there was an agreement that there'd be a certain amount of money available each year. Then we'd put up a series of proposals and the department would propose some to us and we'd have meetings and decide what to o and so on." (ACA57)*

Involvement in government (parliamentary and departmental) committees, panels and other forums

Academics had a great deal to say about the importance of relationships made via their involvement in government (both parliamentary and departmental) advisory committees, experts panels and steering groups for facilitating the influence of their research. These forums could be both structured and ongoing or more ad-hoc and time-limited. Academics reported varying roles in these forums, from ongoing membership or representation, to attending and making presentations at selected meetings, or otherwise linking with them in order to provide briefing material or submissions for their consideration.

> *"It wasn't until the Productivity Commission thing, where I got put in a workshop, when I finally met everyone. I was like, okay, because that's impossible to find from the internet. So unless you have a connection to start with, it's very hard to break in…" (ACA28)*

> *"…I sit on a couple of committees, which are government-funded committees, and often there'll be…government representatives, as well as academics. So, it's*

through those committee meetings that I get to meet people, and often use that as an opportunity to talk to people about what I'm doing and establish relationships." (ACA8)

"I sit on the Ministerial Advisory Committee…So if I've just recently finished a project and we're producing a report…then I'll be taking a summary of the findings to that meeting and have a formal presentation to that meeting about what we're finding. Then there will be a discussion and they'll be saying, oh, okay, maybe this means that or that means this. Then I'll take that information as part of the process of building the report on the findings." (ACA85)

Some academics seemed to consider that these kinds of links were one of the most direct links that they could have with the policymaking process, and thus direct ways for their research to have influence in policymaking. For example:

"In terms of my direct association with policy, I have been on a few committees and panels and things….." (ACA54)

"…we sit on committees that are making those sorts of decisions about policy. Very often, we're the people chairing those committees. They are developing policy with us in the room." (ACA84)

Where other types of research relationships might involve the production of research products, these relationships often focused more on disseminating and translating research products. However, several academics detailed how these forums could be, and had been used, as a strategic part of both producing and translating research to feed directly into a policymaking process. For example:

"I was deputy chair of the [review] committee. This was an example of where we undertook extensive research in a very tight timeframe and we utilised funded research, very focused on the key policy issues. We involved in the committee key players who had a research and policy background. But at the same time we made sure that there was an independent sounding board of...key people in the community….I think one of the interesting things about that report was that there's been many reports to government and government was at the stage where it was looking for answers…It had several sets of advice, including from within the parliamentary committee system, outside the parliamentary committee system. Very complex – what people talked of as a "wicked" problem in policy. This is in a situation where ministers were saying well, can you show us a path through this complex task…." (ACA55)

A number of academics noted how difficult it can be to become involved in government policy committee forums in the first instance – these academics felt that they needed to be

well-known and for their work to be valued as a precursor to their participation, and opportunities to become known were often tied to previous involvement in these forums:

> *"But that's so hard to get involved in those committees and they are a labour of love because you've got to get invited to start with…." (ACA34)*

Sometimes participation in these forums was facilitated by existing informal relationships forged via mutual participation in other forums, such as conferences or industry group/professional association activities. Sometimes academics reported having been noticed via material they had published and disseminated. For example:

> *"Then we actually wrote some stuff…which was critical of the procedures that they were using. But their organisational culture was actually to …try to take that criticism on board. So they asked us to be on a committee to help them redesign…and to think about the procedures…." (ACA5)*

Involvement in one committee could be the pathway for involvement in others. For example:

> *"I've done a couple of other Senate enquiry kind of submissions; you can write short pieces for them. One thing which has become clear to me is once you've done one, you get on their list and they, then, tell you what there is and seek submissions." (ACA12)*

Other academics reported how they had become involved with a committee or advisory group as a result of a research contract/consultancy or other specific research relationship. Their involvement may have been designed to be a platform for disseminating the outcomes of that specific research contract/consultancy, but was frequently also to provide broader expertise.

Finally, several academics noted that they had been approached to contribute to government forums due to their association with an academic organisation with specific, recognised expertise – for example, because they are an academic with a research centre, institute or university school with a dedicated research focus.

> *"…it was the secretary of the committee [who] invited me to submit. I don't know where he got my name from, but they probably trolled through universities looking for areas of – desperate to get someone." (ACA52)*

Many academics interviewed felt that participation in these kinds of relationships supported future research opportunities and funding – but the links between the investment of time and energy involved and future opportunities secured were not necessarily acknowledged and

valued in the same way as relationships more directly tied to funding, contract or consultancy type relationships. As such, the academics highlighted how academic investment in these relationships is not valued by universities. As one academic highlighted, universities tend to have:

> *"…an obsession with high ranking journals and all that stuff. An inability to see the value in an academic being commissioned by the government of the day to chair an enquiry, inability to give recognition to going across to parliament and being cross-examined by a senate or House of Reps committee or so-called expert witness." (ACA39)*

Further, it was felt that academics who are heavily involved in these forums could actually be very disadvantaged in their workplace. For example:

> *"…I have a very recent case of two weeks ago where one of my staff – who's at Level B – who is on extensive numbers of committees and stuff and lots of engagement, has lots of grants and is lacking a little bit too much in the publication stake has been told categorically that….unless the publications go to eight to 15 [on the university's performance index], don't bother going for promotion to Level C." (ACA34)*

> *"…I've been on so many promotion committees where people put forward their contribution to the community, their contribution to the University's life - and the committee doesn't take a damn bit of notice. The only thing we take notice of at a promotion committee meeting is how many publications that they made." (ACA83)*

Academics spoke of how having experience of involvement in government committee and policy forums, and the broad range of networks that comes from this involvement, enables them to maximize the influence of their research via these pathways into policymaking. For example, a broad range of relationships and a strong reputation means they are able to able to influence panels/parliamentary committee processes formally or less formally:

> *"So there are front door approaches and back door approaches. Because I'm well known in the field and I've got close links and good relationships with a number of people in the departments, I can quietly go behind the scenes and put up ideas….You can actually write a paper and try and go through the front door through submission or you can have your work put under the table to someone behind the scenes on a parliamentary committee." (ACA10)*

Some academics, however, had a more cautionary tale to tell. These academics highlighted their experiences around how an active and effective involvement in these forums with one

government had precluded involvement in similar committees and panels under future governments. This is illustrated in the comment below:

> *"In fact, I used to be on various government committees, advisory committees – and now my name is problematic for most people. I don't know why, because I try not to be political…" (ACA27)*

Finally, several academics noted how the opportunities to be involved in policymaking in this way can be limited by the existence of such forums in the first place – highlighting that different governments place different emphasis on mechanisms such as advisory panels and parliamentary committees for progressing their policy agendas, and some governments are ultimately less openly consultative than others in their approach to policymaking. These types of research relationships are therefore less relevant in some contexts.

Involvement in industry/professional association groups and committees

Participation in committees and involvement in professional associations or industry groups were largely considered helpful linkage strategies, but featured less in the interviews. One of the key themes around involvement in this type of linkage related to how these organisations acted as intermediaries in mobilising research knowledge – meaning that the academics were able to feed their research products into policymaking processes whilst maintaining personal distance from the politics associated with these.

Academic initiated and managed advisory groups/panels/committees

Many academics spoke of the self-initiated advisory groups/research committees or panels that were put in place to support stakeholder involvement in planning, implementing and disseminating funded research. The level of attention to this in the interviews was, again, shaped to some extent by sampling methods, which targeted recipients of ARC research funding.[25] However, a number of academics also spoke of more ongoing groups that they had established around a broad research area of interest, in order to support ongoing relationships with key stakeholders, such as policymakers. These structures are designed to support research collaboration:

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[25] The common structure for these projects involves a partner forum of some nature to oversee the research process and dissemination of project outcomes – this is typically initiated and managed by the academic recipient of funding.

> *"By collaborating you're designing it together – conducting it together. Obviously your partners aren't putting anything like as much time in, but you're co-managing the research through your research committee…" (ACA9)*

Academics associated with research centres/institutes also reported on advisory groups/committees that had been put in place by their auspice organisation to set priorities/steer work - with these groups often acting as a mechanism for broad stakeholder input into shaping these.

> *"We also have an advisory group that has all the key government departments and industry groups….as members of that." (ACA51)*

However, initiating and sustaining these groups is not without its challenges, as illustrated in the comment below:

> *"…one of the biggest difficulties we had is that, because we treated very seriously trying to have reference groups, when you go out to industry and government, there's not a lot of people who have got (a) the time, (b) the preparedness and (c) the skills to actually be on those panels. One of the difficulties we had is that we found we were overloading a group of people." (ACA59)*

Conferences, seminars and training

Many of the academics interviewed highlighted how attendance and presenting at conferences, seminars and training have always been a traditional way for academics to disseminate their research work.

Conference presentations provide them with a way of presenting early results and seeking feedback on these from peers and research stakeholders, such as policy officials and practitioners. These can be used to shape both ongoing research efforts or in compiling research products such as reports and journal articles. The increasing emphasis on measuring academic productivity, via measures such as ERA, means that academics are having to be increasingly targeted in their conference efforts – with conferences offering opportunities for peer review being preferred or conference papers being replaced with journal articles.

These conference settings can also provide forums for meeting policymakers, and for beginning to build relationships with them, as suggested by the academic comment below:

> *"I think I've had some influence, not direct in that they say to me would you like to come and sit on our committee that's redesigning the guidelines – but I think they listen to what I have said at various venues." (ACA63)*

However, several academics suggested that not all conferences are equal if participating with this end in mind. The usefulness of a conference in disseminating research messages to a broader audience, and in supporting relationships with a broader stakeholder group, depends on the specific targeting of the conference and the nature of the audience likely to attend. Some conferences are very much focused around providing academics with a forum to communicate with other academics. Other conferences get a broader mix of stakeholders. Of these, some are attended predominantly by public sector participants. These were considered the best for building a profile and relationship with policy officials directly. For example:

> *"… the spectacular thing about that conference is 50 per cent of the audience is basically from government... If you want to go to a conference where the guys pulling the purse strings in the future might be, then that's a good conference to go." (ACA53)*

Participation in conferences targeting academics or broader stakeholder groups, however, could also be useful, with a number of academics relating how this built their profile and professional reputation more broadly – and in doing so, created other pathways for relationship building and research opportunities.

Informal and formal relationships and moving between these

All of the academic respondents made at least some note of how both informal and formal forms of linkage relationships were beneficial in creating research opportunities and/or enhancing the impact of their research.

Many highlighted how formal linkages and informal linkages are very much inter-related, with formal forums frequently being used to cultivate informal relationships and vice-versa. For example:

> *"But to be honest, the main way in which I disseminate the work is by chatting in the coffee breaks on the committees I'm on, or if it turns out that one of the committees that I'm actually on pertains to some research that I've done, I can actually summarise it in the meeting." (ACA74)*

"We did a workshop seminar with people there from the Commission and from Prime Minister and Cabinet from finance who were interested in issues to joining up, shared outcomes, the finance people and how do you structure the money and others. That's great because those people might not even necessarily talk to each other and they may not ever talk to us, but there was a person that we know who brought that group together. That's a really great way to start dissemination of ideas. Those people will come back to you. You just keep the conversation going…" (ACA18)

Some academics highlighted how the benefits of participating in informal relationships, in terms of the opportunities they create for paid research work or other forms of desired collaboration with policymakers, had not always readily been apparent to them – but how this kind of relationship-building had been increasingly prioritised as their career had evolved. For example:

"I think now I'm getting more senior I realise the importance of having those connections. I will have meetings with people who are interested in my work, but I don't do it ever with a view of saying, right, we're going to collaborate on this. I do it to kind of establish an ongoing relationship with them. If nothing happens for four or five years I'm comfortable with that as long as I've got them as a contact." (ACA7)

"We've been tracking each other's careers and talking – we've now got this convergence of interest which is leading to a conference paper and, potentially, a journal article that we'll do together and, possibly some funding into a project that I want to put together." (ACA1)

Participation in knowledge brokering networks and relationships with knowledge brokering organisations, forums or individuals

A number of academics suggested that participation in formal knowledge brokering/information sharing networks was an important strategy for making connections with their research target audience, for developing research projects and for translating research products to maximize research impacts. Individual researchers do not typically have the capacity to form and sustain direct relationships with all of the policy players they may seek to influence with their research. Knowledge brokering organisations/think tanks can be a way of initiating relationships and sustaining them over time without the need for ongoing direct contact. These perspectives reflect policy official perspectives around the value of knowledge brokering in enhancing research use in policymaking.

Several brokering networks or organisations in particular - such as AHURI and ARACY - were cited as examples of how effective these relationship models can be.

However, some academics also felt that these more formalised knowledge brokering approaches could also act as a barrier to linkages.

A key criticism, highlighted by one academic in particular, was how intermediated knowledge mobilisation could make it more difficult for individual academics, who were experts in a policy area, to make connections and build relationships with policy officials directly. Policy officials are encouraged, and often find it simpler, to access information via the knowledge brokering body, reducing the opportunities for the kinds of direct and personal interaction that support translation and adaptation of an academic's research product. This criticism is illustrated in the academic's comment below:

> *"…theoretically or in principle [knowledge brokering organisation name removed] say it operates on an engagement model. But it's a very structured engagement and a criticism… would be that it hasn't engendered as much informal interaction between the policy and research as it might have done." (ACA22)*

One specific implication of this that was highlighted is that policy officials are then less able to be engaged in research processes as they progress. As a consequence of this, they inevitably play a reduced role in shaping the focus, scope and specific outputs of research efforts – and may feel less "ownership" of the research findings. This in turn may limit the influence of the research on understanding and addressing the policy issue it was intended to inform.

Think tanks were identified by several academics as a specific type of knowledge broker that could be influential in mobilising research. Many think tanks in Australia are auspiced by universities, and provide a direct avenue for research to make its way into policymaking. Indeed, some have been established with the intent of creating a more formal partnership between government and university researchers, and a clear pathway for flows of research information – for example, the Lowy Institute. A key challenge shaping the effectiveness of this knowledge brokering model, for the academics who spoke of it, involved the extent to which the think tank was considered politically independent. This independence was deemed necessary for academics to be confident in providing a think tank with research products, as it was important in shaping how research messages from the think tank might be accepted and drawn upon in policy processes. Further, alignment with a think tank that was not independent created reputational risks for academics.

Finally, a number of individual academics noted how they themselves they themselves had effectively adopted a role of informal "knowledge broker" (often in spite of significant organisational constraints and disincentives). This "championing" focus for mobilising their own research products, and also of their peers, was considered to underpin their professional reputation and ultimately their success in influencing research use in policymaking.

Factors shaping which linkage type academics prefer

An analysis of academic interview material around the types of linkage activities they engaged in revealed a strong focus on discussion of preferences around participation in various linkage types. This focus on preferences was not as prevalent across the policy official interviews. In part, this focus can be explained by differences in the nature of sampling for each of the groups, combined with differences in the professional and institutional imperatives that drive the activities and work outcomes that are prioritised between the groups. For example, sampling strategies for academics emphasised academics with a particular interest in the research-policy interface, while policy official sampling prioritised the inclusion of public servants with policy development and implementation functions. Policy officials can fulfil their policy work functions without necessarily valuing or using academic social research. Academics working at the research-policy interface are more likely to be involved in, and assume the importance of involvement in, linkage relationships to effectively disseminate their work. If the value of involvement in linkages is assumed, then the question of which linkage is most effective and why would naturally become more prominent amongst the research issues discussed with respondents.

The key themes around linkage preferences reported by academics are insightful, and may help to guide thinking around the ways in which linkage strategies might best be developed or enhanced to support research impact. This section of the chapter devotes itself to outlining these themes.

Academic discussion of contracted research or consultancy research relationships typically honed in on the many challenges associated with this type of work. Key challenges reported included:

- intellectual property issues and capacity for publication;

- changing involvement of key policy official stakeholders;
- tensions around timeframes;
- limited resourcing; and
- constraints on the focus and scope of research – with this typically being reactive, narrow and overly-prescriptive.

These challenges are illustrated in some of the academic comments below:

> *"Well, the consultancies, they come in very clearly with what they want. There's a lot of consultancy that I won't do…because I'm not prepared to do what they want me to do and it goes against what I think is appropriate…" (ACA15)*

> *"…probably the most frustrating thing about doing contract research is that accommodation of deadlines and also funding restrictions means that often we can't do as good a job on the project as we'd like." (ACA57)*

> *"Because the consultancies I think are very short timeframe and I find that very difficult to meet the timeframe for those types of consultancies. I also think that they are sometimes theoretical and I also don't think that they value some of the rigour of scientific enquiry and so it is not particularly interesting for me to do those kinds of projects." (ACA34)*

> *"If you're trying to generate new knowledge and write that knowledge up, you've got to think very carefully about consultancies of contract research. There's often IP [intellectual property] restrictions. There's nearly always not enough funding to fund the time it takes for you to convert your results into a publication or an article." (ACA90)*

Academics highlighted how academic-initiated versus policy official-initiated contracted research arrangements – or collaboration around planning and goal-setting for a project - can ameliorate some of these issues and result in a higher quality, more influential research product.

> *"Collaboration with end-users can be useful to legitimise research and open doors during the research process." (as18)*

Many academics highlighted that contracted research isn't necessarily synonymous with collaborative research - despite policy officials and academics establishing a relationship to produce research. A specific commitment to work collaboratively needs to be present for academic and policy participants, and then strategies and processes to support collaborative research approaches need to be actively put in place.

Some academics made a point of making distinctions between various forms of contracting and consultancy arrangements, and noted that there could be implications for the kinds of outcomes possible from the process. For example:

> *"…the difference that I would draw between sort of straight consulting and contract research is that, with contract research you're commissioned to do something in particular and you have deliverables but you also have the capacity to use that material for publication, for academic publication. Whereas with fee-to-service consulting, often all you do is that you provide some sort of a service and you know a report may exchange hands and then you're not interested anymore." (ACA41)*

A number of academics highlighted how consultancies/contract work could be pursued for financial ends, but doesn't always necessarily align with core research priorities. In these instances, and other instances where research activities don't align with their research priorities, the academics highlighted the broader relationship benefits to their involvement – with this work being viewed as part of a larger strategy around relationship building with policy stakeholders. This is illustrated by the following academic's comments:

> *"…the consultancies, from my own personal perspective, are not richly remunerated. People are never going to pay the full economic cost of them, and I personally question whether or not we should do too many of them, unless you're doing it at a loss to directly secure funding down the track or in some other way to ingratiate yourself with these people for some reason." (ACA40)*

Where academics work within research centres or institutes the need to attract funding by taking on contracted work can be more pressing than in other academic settings.

> *"In the past, [research centre name removed] traditionally has split its funding, again about 50 per cent from competitive research grants and 50 per cent from commercial consultancies, and we have - we don't have any core funding from the [auspice university name removed], but the university does provide us with some funding, but it's only a relatively small proportion of that total budget. There is a strong pressure, if you like, put on a senior manager, senior researcher like me, to actually pursue funding." (ACA19)*

Longer term research projects were sometimes considered to be more satisfying:

> *"But the fantastic thing about it is that they said it's a three year research project, not a two-month consultancy project, fix it. This is a completely different way of doing it…. If we get this right, and we've built it with action learning implementation in it… very high levels of engagement." (ACA15)*

However, shorter contracts/smaller projects for consultancy could also be considered preferable due to the many resourcing issues and other practicalities for academics in universities – as illustrated by the following:

> *"I think you've either got to keep it small enough that it's manageable as a sideline activity, or you've got to make sure it's well-resourced enough that you can employ a project manager. Otherwise it's just too hard to juggle with other jobs and, in that case, better left to a consultancy firm who can put someone on it full time for…whatever's required." (ACA3)*

Several academics highlighted the relative advantages and disadvantages of contracted research relationships versus ARC-type partnership arrangements. For example:

> *"I think the reporting requirements on an ARC aren't as onerous as trying to get a consultancy out. You're usually running to a deadline and all of that sort of thing." (AC32)*

> *"The problem with contract research with a government agency, there were always…intellectual property struggles and publication struggles. I think the upside of the government work….is that the ethics and the access questions in terms of getting hold of human subjects and into institutions usually are smoothed over by the government agency that's supporting you. The downside to the ARC on the other hand is that you can get all the money and everything, all the design set up and then find that you can't get access to do that, so that's a real problem." (ACA92)*

> *"…you would think that with the Linkages[26], that there'd be much more flexibility and autonomy…I think it really depends on who the industry partner is too. In some of the ones I did, they were very interested, but didn't try and direct the research too much with the Linkage. In others, it seemed that they couldn't understand the difference between a Linkage, which is a collaborative endeavour, and a piece of contract research where we do all the work and give them the answers. With a consultancy, I actually found that the kind of parameters were much clearer and that they were clients, but we could say that this is what we are prepared to do and this is what we are not prepared to do. They seemed to accept that far more than the kind of fuzziness of a Linkage." (ACA7)*

A number of academics highlighted how they had been able to pursue synergy between their research program and consultancies, and how this can help to enhance, expand or consolidate other pieces of work. For example, one academic noted how contract funding had been used to resource travel to gather data. This data was reported on to meet the

[26] This academic is referring to ARC-funded Linkages research projects as a specific type of linkage relationship.

contract brief, but also created a larger pool of data available for a related ARC project. In doing so the academic illustrated how different several types of research relationship can be drawn upon to meet overarching research goals:

> *"I tend to leverage the two of them [ARC work and contract work]. It all gets a bit blurred in places. I won't go out – unless I can see the value – some real value for me in doing a consultancy – apart from producing the consultancy – I won't actually do it." (ACA32)*

Thus, one type of research relationship is considered to complement another and contributes to a well-rounded program of work that engages a broader group of stakeholders.

Sometimes academics spoke about choosing a research relationship solely to try and maximize the impact of their research outcomes. For example:

> *"So I actually suggested to the [departmental name removed] of the day that they have a project along these lines and help them organize a workshop where I, and a number of other people, shaped up the parameters for that consultancy and then was successful in applying for the funding so I was essentially doing a project that I designed…I have no regrets about doing that piece of contract research because it was absolutely critical in terms of getting both early prevention or early intervention onto the policy road map in Australia…" (ACA90)*

On the other hand, academics (including the same academics who reported undertaking research projects for pragmatic reasons) also highlighted their reluctance to engage in particular types of research relationships due to limitations around the potential for their research's impact:

> *"If you're trying to generate new knowledge and write that knowledge up, you've got to think very carefully about consultancies or contract research…My reasons for going into a university were that I wanted to generate new knowledge around these areas I'm interested in, a scientific method to be addressing social problems. So, on the face of it, contract research and consultancies look very attractive because they are always focused on a particular problem and they want you to use, very often, quite respectable methods to come up with a reliable answer to a problem. Except that when you get into it, you discover they're not interested in that at all. It's all about the fact that they've been told to do this or that for a political need at this moment - for a particular piece of information done by an external consultant..." (ACA90)*

Several academics expressed a preference for informal relationships for disseminating research. For example:

"What I do is either I'll know someone or they'll know me or we'll move in a similar network. I'll find the person to target and then I'll sound them out or they'll sound me out. Maybe in a meeting I'll say we've got some data on that, is that of interest? Basically we'll work that through in a way that's not on the public record but they're still able to cite it and use it. That just gives me a lot more control over how we can best use research to help policy." (ACA10)

However, having a broad range of research relationships was also frequently recognised as the best way of ensuring that academics could be strategic about their approach to influencing policy with their research – with a number of academics outlining in some detail how they approached this. For example:

"So there are front door approaches and back door approaches. Because I'm well known in the field and I've got close links and good relationships with a number of people in the departments, I can quietly go behind the scenes and put up ideas….You can actually write a paper and try and go through the front door through submission or you can have your work put under the table to someone behind the scenes on a parliamentary committee." (ACA10)

"…we develop a communication and engagement plan for each project and we have a model that I developed early on in my time here that basically has a set of concentric circles…the core research groups steering committee, other interested parties and the broader public. We have set methods that we use to communicate or engage or inform each of those stakeholder groups and those methods – anything from direct involvement in steering committee meetings, review processes – depending on the stakeholder groups, newsletters, media articles, conference presentations – so there's a whole lot of different methods attached to each level of involvement with the project." (ACA45)

Where academics do not have direct links in place with policymakers to support sharing their research findings, several academics outlined how they could use other, less direct strategies, to create a profile for their research. For example:

"My research has been used as the basis of advocacy work early childhood organisations undertake to lobby government for improved funding and policy of early childhood education and care services." (as2)

"The only reason that I waste my time writing Op-Ed's and going on TV is because no one else would listen otherwise. I never used to do that, I used to have access, I don't have access. So I think some things are so important, and you go to say it. You know people are listening, and they'll hear it, they don't like it, they'll get a briefing from the bureaucrat that will say this is why I am wrong. At least the debate is being held in, for the best way. There's no other way I can see doing it, except if you're run in to a Minister in a function or somewhere and you can say look, this is the problem…" (ACA27)

> *"…my approach of working at the discourse level would not be a particularly effective way. But you know, if the discourse changes and it becomes a political issue, then it actually might be an extremely effective way of achieving policy change, because we live in a democracy. The ministers respond to these things and send the words out…" – but - "…if you can talk directly to the minister, you'll have the most clout…" (ACA28)*

However, these academics concede that these approaches give them less control over how research messages are tailored to policy contexts and ultimately conveyed to policy decision-makers. Further, they are approaches that hold reputational risks – with lobbying activities potentially making it difficult for future trusting, collaborative relationships to be formed.

Linkage participation patterns are context dependent

Research undertaken by Haynes et al (2011a & 2011b), and Stoker & Evans (2016) suggests that the policy context, portfolio, norms and values of a government department or agency may make a difference to the character and quality of linkages. This section of the chapter considers the extent to which participation in different types of linkages might be context-dependent, with factors such as the role and functions of employing agencies, policy or disciplinary contexts, or even location, playing a role in shaping linkage participation and/or linkage preferences. The scope of this project, together with the nature of the data collected, meant that it was not considered sensible to undertake this in any large-scale, systematic way. However, a number of policy official interview findings, in particular, were the impetus for a more focused analysis of selected policy official data items, which was then rounded out with a further interrogation of interview findings. Outcomes of this exploratory effort suggest that context is important in defining the nature of linkages that are considered relevant and desirable. This material may support a focus (and hypotheses development) for future, more systematic research and in doing so better inform the linkage strategies that best suit more specific contexts.

Policy officials suggested a number of factors shaped the nature and scope of relationships that they participated in with academic producers of research. As noted as part of the discussion of relationship types above, existing relationships (both informal and formal) and relationship opportunities (shaped by specific work unit and departmental research

structures and processes, or the existence of networks within a locality or sector) were often a starting point for building linkages.

A number of qualitative interview comments by both academics and policy officials suggested that linkage participation patterns can also be significantly shaped by the nature of role and functions of policy officials' auspicing agency – highlighting differences between Commonwealth and state agencies and/or line and central type agencies in particular. Factors such as the proximity and approachability of policy official staff (with federal staff perceived as being more "formal" by some, and perhaps less likely to be participants in local networks), and the character of work being undertaken by state versus federal agencies (with state line agency work often being considered the most "local" and "hands-on" by nature, but also as having the least internal research capacity) means that state government policy officials may find it easier to develop and sustain some types of research-related linkages than federal government policy officials, and vice versa. Some of these sentiments are illustrated in a selection of comments below:

> *"The federal government departments tend to be much more formal. Your relationships seem to be formal. The deal takes a lot longer to set up, and they're more likely to be affected by political change, I suspect. So, an issue that was really important one month ago or a year ago will disappear over time, whereas the relationships you build with state public servants tend to be a little bit more enduring, because even though they move out of the job, you know that it's still going to be within the public sector somewhere, within a large measure. With the federal public servants, it's more about working with them for that period of time, and knowing that, within a years' time or two years' time, all or most of them will be gone from that field within a short period." (ACA84)*
>
> *"I think the Commonwealth is a bit more divorced from the service delivery. Just because of the nature of who they are. So they will take a bit more of a theoretical approach. I know that's not necessarily a bad thing. (PSVT57)*
>
> *"Well, certainly from the program that I administer, the Community Care Program, the research that happens at a regional level has been most successful where local staff have identified a problem however that's happened, whether it's in consultation with the community or the community has come to them and said, this is not working or service providers have said, this is not working. Then gone to market whoever that it, it could be through a relationship they have with the local uni for example and research has come up with a solution and off they go." (PSNC97)*
>
> *"…certainly, from a central agency point of view, consultants are engaged on a – not a regular basis, but on a more ad hoc basis depending on the issue at hand.*

> *"The issues that crop up are enormously varied and really, the timing of those is something that is dictated by events in the community." (PSQT112)*

> *"I think a lot of the conferences discuss issues that are inherently Commonwealth responsibilities and less so the states." (PSFC110)*

Connections with university researchers can also differ vastly amongst areas of the same department, as well as between them, depending on the specific focus and role of each area. This is illustrated in the following policy official's comment.

> *"I think our economic policy division…have a relationship with the [name of university removed] University…they use them for modelling assistance and so there's a whole network in there [at the university] that is being used… From our perspective, looking at policy and budget issues, it's less likely…we're dealing more with departments." (PSVT58)*

Physical structure and infrastructure differences between different departments were also fairly frequently cited by academics and policy officials as shaping linkage relationships. For example, material from the interviews suggested there was a greater likelihood of mutual participation in forums where institutions were more closely sited, and this was considered to help to create and sustain better relationships.

A more indepth analysis of quantitative data across different subsets of policy officials confirmed that there are in fact differences in linkage participation between State and Commonwealth and central and line agencies. However, these differences did not always reflect the relatively simplistic understandings of the state/Commonwealth and line/central agency divide gleaned from the interviews, as outlined above.

Data was compared and contrasted for state versus Commonwealth and line versus central agencies, and then amongst the central agencies included in the survey group (as a number of these have quite distinctive roles and functions from others). Key findings from this are outlined below[27]

State central agency respondents (i.e. those working in state government Treasury, Finance or Premier and Cabinet departments) most often reported that there is little opportunity to build relationships with researchers outside of the public service, with 66% of this group of

[27] Supporting data tables for these findings have been included as appendix 6.

respondents agreeing/strongly agreeing with this statement. Only 43% of the Commonwealth central agency respondent group agreed/or strongly agreed with this statement – but when central agencies with more specific roles (i.e. ABS and the Productivity Commission[28]) were removed from the data 66% of the "other" Commonwealth central agency group also agreed/strongly agreed with this statement. This suggests that there may be specific challenges for policy officials from these types of departments, with this being shaped more by agency functions than level of government.

Line agencies, at both Commownwealth and state levels of government, reported being more likely to contract academics to undertake research than their central agency counterparts, with 51% of Commonwealth and and 48% of state line agency respondents indicating their work unit does this, compared to 19% of Commonwealth and 33% of state central agency respondents.

State government policy officials were more likely to work with external research partners in university research centres than their Commonwealth counterparts (with 55% of line agency, and 43 % of central agency state government respondents, reporting they have worked with between one and five university research centres in the three years prior to the survey). Where Commonwealth policy officials report doing so, it is far more likely that they work within a central agency (39% reported working with between one and five university research centres over the same time frame) than a line agency (only three percent reported working with university research centres).

State government policy officials were also more likely to have linkages with individual academic researchers (43% and 33% of state government line and central policy officials respectively reported having one to five individual academic research partners in the three years prior to the survey)– but the difference between them and their Commonwealth counterparts is not so marked (31% and 34% of Commonwealth government line and central policy officials respectively reported having one to five individual academic research partners). These extra linkages between individual academics and Commonwealth

[28] Only 31% of ABS respondents and 37% of Productivity Commission respondents agreed that opportunities to build relationships outside of the public service are limited.

government policy officials may reflect a greater ease for Commonwealth government staff in Canberra to have direct relationships with individual university researchers in less formal ways (e.g. because there is more of a practice of academics presenting at departmental forums).

The greater familiarity and sense of connection with local policy issues and stakeholders that characterised line agencies, as highlighted in the interviews, is likely to play some part in shaping the greater importance that line agency policy officials place on linkage-related means for obtaining research. The table below illustrates how policy official respondents in line agencies – both state and Commonwealth - accorded more importance to all of the linkage-related means for obtaining research canvassed in the survey question.

Table 11 - Policy Official Agency Type Analysis - Importance Accorded to Linkage-Related Means for Obtaining Research Information by Work Area

Means for obtaining research information important/very important (%)	**Commonwealth**		**State* (NSW+VIC+QLD)**	
	Line	Central	Line	Central
Involvement in forums/networks that share research	61	44	72	47
Conferences or seminars involving university researchers	60	49	65	53
Active involvement in research projects with academics	39	20	48	21
Membership on expert panels or committees involving researchers	41	35	46	30
Commissioning university researchers	44	12	40	24
Emailing or phoning academics about their research	22	15	36	19

A closer examination of the central agency survey responses was undertaken to try and understand more about line versus central agency contextual factors in shaping linkage preferences for policy officials. Agencies with quite unique roles and character – the ABS and Productivity Commission - formed part of this group, and it was felt that these agencies might be good illustrators of the context-dependent nature of linkages. The ABS and Productivity Commission results were in fact distinctive across the linkage survey items considered.

For example, Productivity Commission respondents considered research evidence to be much more valued in their work context and by their agency than any other central agency group, across all of the valuing research items considered. The Productivity Commission is a central agency with the unique role of providing independent research and analysis on social and economic policy issues, and so in this context it is hardly surprising that research evidence is so highly valued at an organisational level. All of the Productivity Commission respondents (i.e. 100%) agreed/strongly agreed with the assertion that research is important in their professional field. Productivity Commission respondents reported working with university research centres or individual university researcher partners the most, were the most likely to indicate that they contract academics to undertake research projects, and indicated that they had personally consulted with university researchers more frequently than any other respondent group. When taken together with responses to survey items exploring the importance of a range of linkage strategies, such consultation is likely to have taken the form of contact at conferences/seminars involving university researchers and emailing or phoning academics about their research. This data is outlined in table 12 on the following page.

Table 12 - Central Agency Breakdown - Importance Accorded to Linkage-Related Means for Obtaining Research Information by Work Area

Means for obtaining research information important/very important (%)	Commonwealth			State
	ABS	Productivity Commission	Other Central Agencies	Central Agencies
Involvement in forums/networks that share research	53	37	34	47
Conferences or seminars involving university researchers	53	58	39	53
Active involvement in research projects with academics	26	20	11	21
Membership on expert panels or committees involving researchers	40	33	27	30
Commissioning university researchers	11	27	7	24
Emailing or phoning academics about their research	24	52	21	19

.

ABS respondents reported personally consulting university researchers the least frequently – and were also far less likely to work with or contract individual researchers or university research centres. In contrast to the Productivity Commission's role which emphasizes both undertaking and analyzing existing research, the ABS is predominantly a producer of national research products. In terms of the types of linkage strategies considered important, ABS respondents appeared to favour strategies that involved participation in forums/networks, attending conferences and seminars and membership on expert panels/committees over commissioning research, involvement in specific research projects or making more individual contact with academics via phone/email. This is likely to reflect

ABS functions around the provision of research products and expertise – with such involvement maybe being more about disseminating ABS research products and consultation about ABS research processes and practices than seeking research information from academics.

A number of additional context-related themes shaping linkage participation preferences could also be identified from the policy official interviews. These typically were considered to be shaped by the influence of less tangible, but powerful, cultures within the political arm of government, the sector or the department they worked within. Some policy officials noted how dominant paradigms about the role of government in shaping policy and program provision (for example, from highly involved governments through to those who were more hands-off in the provision of direct services) shaped the nature and focus of work priorities. Others referred to more specific perspectives around how policy should be made (and how research is or isn't valued and used within this). Others highlighted specific structures and resourcing within their sector that supported or impeded research-related relationship-building. All of these things could be influenced more by history and precedent (with some policy officials emphasizing historical state approaches to the provision of services, for example), or could be driven more potently by changes in context, such as a change of government or significant event. Some of these themes are illustrated via the sample of academic and policy official comments below:

> *"How well the research partnership goes – and the reception of the material – largely depends upon who is in government. (as33)*
>
> *"…the nature of those Commonwealth state activities change, depending on the political government at the time - the government, whether they're the same or whether they're different, whether there's a personal connection or not, between our political masters or not. (PSQE20)*
>
> *"So I think there are different levels of maturity across all tiers of government. I suppose I would say my experience in the social area – certainly the Commonwealth Government – so in the social policy area – seem to get and commit to evidence-based policy, depending upon the issue. Sometimes it might be evidence informed versus evidence-based." (PSAB64)*
>
> *"In some state governments at least I think the senior are more politicized that they are in the Commonwealth which is a very big barrier for effective use of information." (PSAB87)*

"Some of the States I notice are leaders in their own right in fields I am associated with on the COAG field. Some states are leaders; some are more dependent on outside advice and Commonwealth research - so it actually varies between the states. It also varies from time to time. You see some states taking a leadership role in research in certain areas sometimes, but then taking a more accepting role at other times." (PSPC45)

"But when policy, which happens in ways of government usually or in organisational structure anyway, is a bit more sidelined and you're big on operations, then there is less of the focus on that policy evidence relationship because there is the bit more about the doing. But the wave turns again." (PSNP123)

"I think here I am seeing a bigger focus now on evaluation, and I think that is driving a focus on research." (PSNP126)

"It tended to be around where there was a strong academic tradition in a particular discipline and a pre-existing relationship…." (PSNP118)

"I think it varies depending upon the policy area to be quite truthful and the maturity of different areas. The health area, for example, I would say is very evidence-based, certainly more than simply evidence-informed, particularly in the epidemiological area and the population health area." (PSAB64)

"…certainly there is a potential network to link for academic researchers and senior people in educational systems….I think one is professional, one is systemic, one is….the New South Wales College of Deans and Teacher Educators has got very fine academics there." (PSNE16)

"…the last government, I think there wasn't a lot of appetite for controversy. They were an old government and they were scared in the last few years. It was very difficult for them to even acknowledge research and release it if they thought it was remotely controversial." (PSQE21)

In addition to the types of relationship opportunities possible, policy officials who commented on preferred linkage types suggested that the research relationship chosen was shaped most by the nature of their organisations' business and operations, the policy issues to be explored and consequently particular research needs. For example:

"Academic work is typically not utilised as often in central agencies as basic policy development is more likely to occur in a line department. However, academic work is certainly not excluded from the range of data sources used to validate a proposed policy as it passes through central agency scrutiny. When working in a line department academic linkages were typically much closer than I now find in a central agency." (pss22)

> *"…it tends to be much more about the nature of our business and operation. So I would ask AHURI, for instance, for the latest reading practice or evidence towards a particular policy - but in terms of strategic stuff I would either contract that with another government department…or I might go to an expert contractor where they have experience…The more big picture strategic policy stuff is something I'd ask the academics." (PSVC41)*

> *"I think there's a real place for ARC Linkages…but my experience of that is that sometimes its generated from outside and often it's got a far more rigorous academic approach, whereas mine tends to be fairly utilitarian. I needed someone to do an evaluation. I needed someone to write this report." (PSVE10)*

This material around linkage preferences should be viewed as indicative of the context dependent nature of preferred and actual linkage participation - rather than results of a systematic exploration of all possible contextual factors that may be significant across the data collected for this project. Some of these themes will be highlighted again in the next chapter, as identified barriers and facilitators to linkage relationships are presented.

CONCLUSION

Both the academics and the policy officials surveyed and interviewed reported that they participate in many different types of linkage relationships to support them to access, translate, commission and co-produce research. These relationships range from informal, networking focused interactions (with this networking centred on creating access to academic/research derived expertise) to interactions highly focused on the production of particular research outcomes. Academics, in particular, frequently reported participating in a number of different kinds of relationships with policy officials over the same time period. Further, these multiple relationship types at times involved the engagement of the same policy official people in different ways. This was reported to be a conscious strategy on the part of many academics, and was used to build the widest possible range of pathways for research influence and further research opportunities.

It is interesting to note the examples of investment in longer-term formalized relationship building efforts (for example, the extended contracted research partnerships) highlighted by both academic and policy official respondents. These seem to go against Australia's current economic and policymaking climate (which have been increasingly characterised by economic rationalism; specialisation and out-sourcing (Head, 2015), but are viewed

positively by academics and policy officials alike as important ways for supporting better quality relationships and thus research outcomes for policymaking processes.

Presentation of themes from academic interviews around their linkage participation preferences, and the data around the context-dependent nature of linkages, suggests that participation in different kinds of linkage relationships – and indeed in linkage relationships at all – is shaped by a complex interplay of a large number of contextual factors. Conclusions to be drawn around an exploration of key barriers and facilitators to linkage relationships, to be presented in the following chapter of this thesis, can only add to this complexity. However, efforts to enhance research use in policymaking via linkage strategies cannot hope to succeed without adequate consideration to the array of influences shaping linkage relationships at the research-policy interface.

Moving forward with the thesis, the broader focus of the datasets drawn upon means it will not, for the most part, be possible to make distinctions about the significance or role of linkages by the different types identified in the typology, or to identify barriers and facilitators to specific types of linkages. Most of the findings presented, and conclusions drawn from these, will relate to the concept of linkages in a general sense. However, the thesis has now illustrated that this general concept of linkages is made up of a broad range of relationship structures and interactive behaviours, which are not necessarily distinct and can be inter-dependent.

CHAPTER 5 - THE FACILITATORS OF, AND BARRIERS TO, EFFECTIVE LINKAGES BETWEEN ACADEMICS AND POLICY OFFICIALS

INTRODUCTION

As discussed in chapter two, linkages are very frequently highlighted as the answer to increasing the impact of research in policymaking in the literature. Despite seemingly providing a simple and achievable strategy for boosting EBP, they do not appear to be routinely enacted to this end. A better understanding of the barriers and facilitators to linkage relationships in policymaking, which has not been a discrete focus of research attention to date, may shed more light on why this is the case.

Qualitative interview data and comments gained via the survey instrument were analysed to identify key facilitators and barriers to establishing and sustaining effective linkage relationships between academics and public servant policymakers. Quantitative data gathered via the survey instrument was also explored to identify the extent to which there was alignment with the qualitative themes. These findings have been structured into two sections – policy official perspectives and academic perspectives – outlining key barrier and facilitator findings separately for each group.[29]

The nature of the data sources drawn upon for this project, which were designed around a broader set of research questions, mean that it was not possible to be nuanced about developing an understanding of the barriers and facilitators to any of the specific types of linkages, as identified in the previous chapter, in the context of this project. This chapter thus discusses barriers and facilitators, with linkages being understood more generally as a wide range of relationship activities.

[29] Findings around facilitators and barriers to linkages drawn from policy official data analysis have previously been published in the following paper: van der Arend, J. (2014). "Bridging the research/policy gap: policy officials' perspectives on the barriers and facilitators to effective links between academic and policy worlds." Policy Studies **35**(6), 611-630.

POLICY OFFICIAL PERSPECTIVES ON THE FACILITATORS AND BARRIERS TO LINKAGES

Facilitating linkages

An analysis of policy official data sets enabled a number of key facilitators for linkage relationships to be identified from a policy official perspective. These are outlined below, and illustrated with examples of supporting data.

Policy-relevant research is valued

A very high proportion of policymaker survey comments, and many policy officials interviewed, expressed perspectives on the extent to which their organisational environment valued research in the policymaking process. These perspectives either reflected an organisational environment that valued research and had a culture of supporting staff to use research, or an organisational environment that devalued the use of research. Both of these perspectives are illustrated in the comments below:

> *"A culture of evidence-based policy development has evolved in the department. Staff are expected to use research to inform the development and delivery of policy. Articles and research reports are regularly circulated within the Division". (pss1)*

> *"Evidence-based policy is not a priority in the department, despite political rhetoric. Most departmental workers, from senior executive to the policy writers (executive level 1 and 2s) do not value or know how to access or use evidence." (pss71)*

Whether a department valued or devalued the use of research, it was acknowledged that research use could be shaped by factors that held more weight in the policymaking process – for example, political pressures, time pressures or feasibility concerns. Further in some policy contexts, such as policy areas where there is rapid development or where multidisciplinary research efforts are required but have not yet been co-ordinated, there can be an absence of rigorous research to support decision-making. However, despite this it was felt that organisational valuing of research evidence made it more likely for measures to be in place to make research products available, for strategies to create and/or participate in linkages to be encouraged across the organisation, and for there to be more of a focus on the development of capacities that support effective involvement in research relationships.

The degree to which research is valued is not a static characteristic of an agency – nor is it necessarily one that is agency-wide. "Valuing" research can assist in building research relationships in the first instance, but "successful" research relationships can play a role in building demand for research. For example:

> *"What became obvious is with every success, more research is demanded. We were looking at greater sources of information to stitch together." (PSAB81)*

Organisational valuing makes specific relationship-building efforts possible – for example one policy official, in discussing departmental organisation of "roundtables" around key policy issues, highlighted that this was mainly possible due to support of the Secretary of the department:

> *"Yeah but that was because also our secretary had given us permission to fulfil that role, you know what I mean? So we had some spare capacity to think about those issues and develop a few round tables around them." (PSPC69)*

Other strategies such as research training, brokering positions, the availability of research resources, capacity-building programs such as exchanges with universities, and organisational involvement in key research networks were cited as further examples of the ways in which organisations that value research enable their staff to access and apply it in policy processes.

Examination of quantitative data collected via the survey suggested that most policy officials do value research products in supporting their work. As illustrated in figure 26 on the following page, 70 percent of policy official respondents considered that academic research results are relevant to their workplace colleagues and 84 percent reported that research is considered important in their professional field. Figure 27 on the following page again (and to a lesser extent figure 26) both suggest that internal and other government agency reports may be considered more useful than academic research reports (comments attached to the survey suggest that this is shaped by a number of factors including the more targeted nature and more timely availability of internally produced material). However, 72 percent reported that professional/industry association reports are valued by their work unit (these reports are often based on research by academics or consultants contracted by the professional/industry association), 70 percent reported that university researcher reports are valued, and 49 percent reported that the work of think tanks is valued.

Figure 26 - Policy Officials' Perspectives on the Relevance and Availability of Academic Research in their Workplace

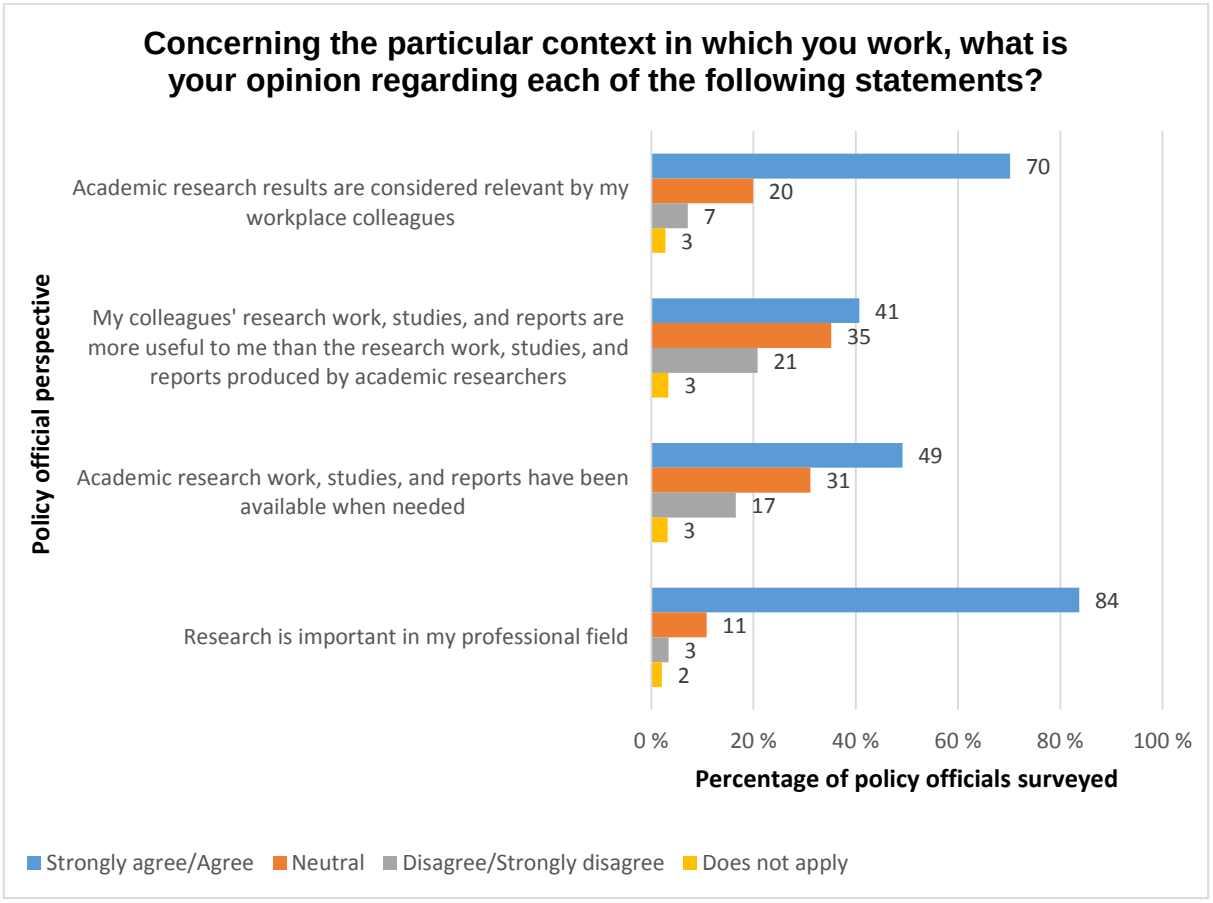
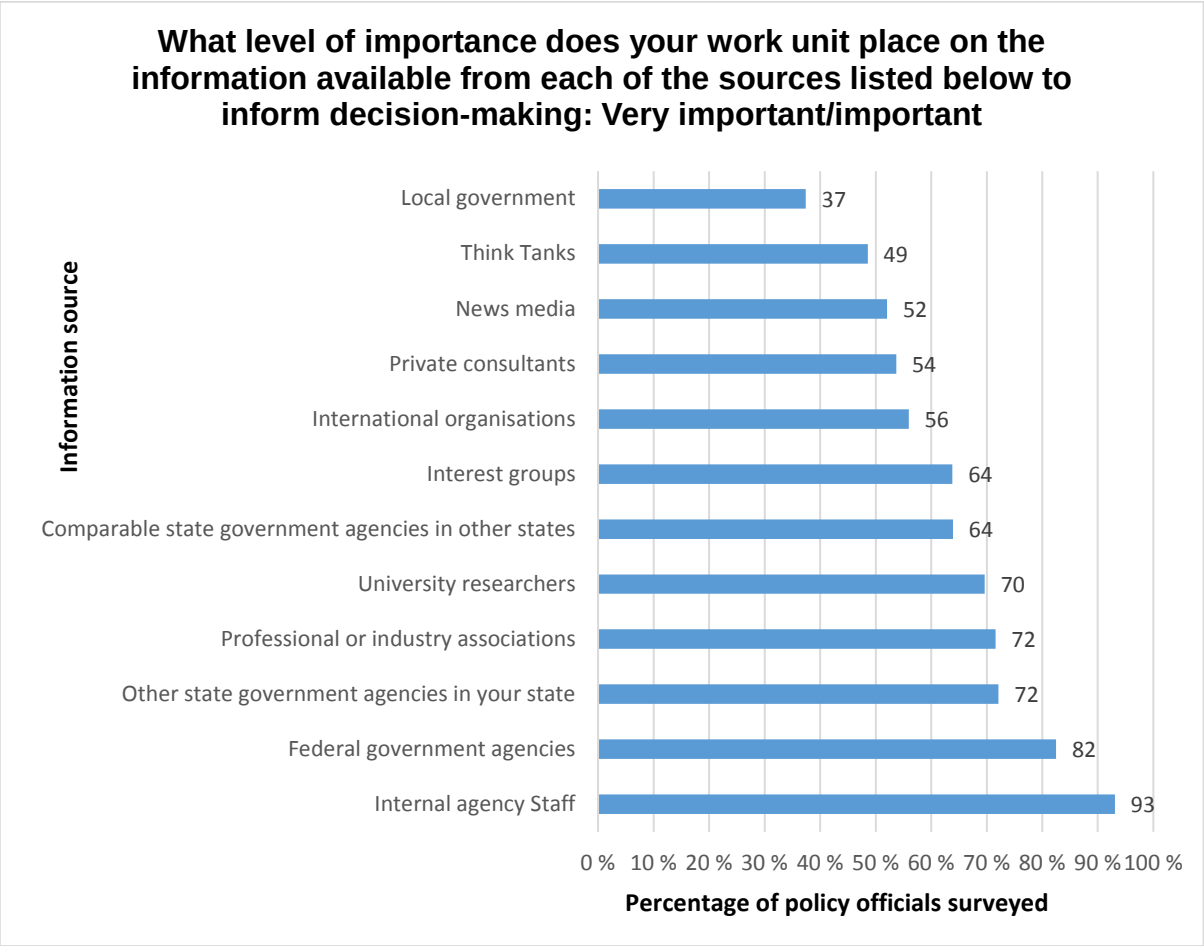


Figure 27 - Policy Officials' Perspectives on the Importance their Workplace Attributes to Research Information Sources for Informing Decision-making



Access is facilitated by existing networks/relationships

Policymaker interviewees highlighted, sometimes repeatedly, how important pre-existing relationships or networks are for creating connections around particular policy issues or for engaging academics in research collaborations/partnerships.

Pre-existing relationships are a way for busy public servants - who are often under considerable time pressures - to know who might be helpful around a particular policy issue.

> *"You'd still have a process behind it, but I think you're right. It's probably people that you know. If I'm thinking about something, I'm more likely to pick up the phone and ring someone and go oh, I don't even know how to start this conversation, but what about X." (PS14)*

In addition to knowing who to approach, many policy officials highlighted how a pre-existing relationship can mean that an element of trust already exists between the policymaker and academic research partner. However, it is important that the pre-existing relationship is characterised by a track record that an academic will deliver outcomes that can be readily understood and applied. For example:

> *"This might sound a little offhand but again there's a lot of trust involved in this whole process and I think over time certain departmental heads or certain executives, certain departments trust certain researchers so they might keep going back to them." (PSAB64)*

> *"…we asked them to do a particular piece of work for us. Again, it was because we had a good working relationship, they knew what we were after, and they delivered a great piece of work." (PSVC33)*

Control over the process and outcomes can also be important where policy issues are sensitive - so a positive past history of working with an academic can be an important part of selecting a researcher or continuing a research relationship.

> *"…the relationship helped that, because it ensured that things happened as they were supposed to happen. It also proved to be able to deliver in very short timelines, and meet all those sort of pressures that we're under." (PSVC33)*

Finally, there was a strong theme in the qualitative data collected around how more lengthy, positive pre-existing relationships can be built upon to produce more effective research collaborations between policy officials and academics. These relationships mean that academic researchers and policy officials build up an understanding of each other's needs and priorities over time, and can be more measured in how they develop joint working strategies and capacities to meet these needs.

The right reputation/credibility creates both access and influence for academics

Flowing from the need for existing networks and relationships, but not entirely defined by these, many policy officials emphasised the importance of academics having the right reputation and professional credibility. Reputation and professional credibility were viewed to be fundamental in creating the linkages that support policy-relevant research, and to having influence within these linkages. Further, policy officials suggested that they can act as a proxy for trust in the early stages of a research partnership. Reputation and credibility

were often referred to together or interchangeably, but an analysis of the discussion revealed that they can in fact be considered as two separate but related dimensions.

"Reputation" essentially involves a track record of working effectively with policy officials to produce policy-relevant outcomes. Many policy officials highlighted the importance of academics relating well to them within a collaborative project, the timeliness and targeting of their research products, having a sound understanding of the policy process and needs of policy officials within this and the ability to translate and communicate research findings to a range of target audiences. Where this reputation is positive this can create ongoing demand for an academic to participate in collaborative research processes with policy officials. The perception can be created directly with policy officials, or be built on "word of mouth" between policy officials.

"Credibility" relates more to perceptions around how "expert" an academic is in their field. Credibility can form the basis for "trust" for an academic researcher's skills and expertise in a context where a policymaker's own knowledge and expertise may be limited. Thus it helps to reassure policy officials that research products will be of a high standard when they may not be in a position to evaluate this from their own knowledge and experience.

> *"…if I had like a zero knowledge base I'd be looking for someone with a good profile or a reputation. I'd probably look for someone, obviously that they were published, that there was some demonstration that their research had been applied and had been usefully applied. I'd look for some confidence that the way they did their research was good." (PSQH73)*

A number of policy officials also highlighted how an academic researcher's professional credibility or standing is critical for helping to ensure that research outcomes can be accepted by the broad public audience for the policy initiative it impacts on. This is particularly the case for politically sensitive policy issues.

> *"People in government, particularly if it's a political problem or a significant policy problem, they want someone with a name who'll give gravitas to the eventual report." (PSQE4)*

> *"Typically we engage external - we formally engage external help, if you like - when we want to buy instant credibility or some independence. Otherwise a lot of the things we'll develop ourselves." (PSVT57)*

It is important to highlight that policy officials viewed an academic's credibility more from the perspective of their perceived expertise or "standing" within the community than that of attainment of any particular academic professional benchmarks (such as track record of publication). In this sense a publication track record can be important for helping to create this standing – but may be insufficient of itself - and in some fields policy officials suggested that this might be far less important than other research and dissemination strategies.

> *"It depends how you define reputation. For us it's not necessarily published reputation, it's about in the field. For some of us that's about bringing stakeholders along. If you can say a piece of research, we're adopting part of or all of some work that was done by so and so, if people generally, either in our sector or the community depending on audience, say, oh yeah we know that person, they are really credible, then it adds credibility to the policy that we're driving so there is some value in that. But that's probably different to credibility in the academia sphere as to how much they write, how many journals they get in…It's more about in our sphere of influence how important is either the organisation or the researcher in that space?" (PSVE12)*

The "wrong" perceived standing could equally act as a barrier to academics working closely with a government of the day – with several policy officials noting how it could be difficult for academics with a track record of working with one government going on to work with a new one. One example of this is illustrated in the policy official comments below. This perspective was echoed by academics, as will be noted later in this chapter.

> *"I'm an outsider to this but there are histories and there are small "p" politics that I don't quite understand. But in [name of state removed], you'll find that certain education academics have certain relationships, well, with the last government. I don't know what it was based on but as a result, it was difficult to use those people. Even though I thought in terms of their credentials and their experience and everything, they were ideal for a lot of things." (PSQE21)*

Finally, a number of policy officials noted how professional credibility and reputation have an influence that can be limited. Whilst they can be critical in establishing linkages, it is the quality of the ongoing linkage that ultimately defines the nature and quality of ongoing or future linkages.

> *"There is a beginning to everything, so that beginning is important in terms of forming an impression about reputation, about relationship, about trust, and about respect. If it works well it will be carried forward. Once there is a virtuous cycle of trust and respect, based on those qualities, it's very efficient, it's really efficient and it's really effective." (PSVC31)*

Academic partners need to be policy knowledgeable and committed to producing policy-relevant research

Policy officials suggested that collaborative research initiatives were most likely to be successful where academic research partners were policy knowledgeable and had a firm commitment to producing policy-relevant research that is relevant, digestible and readily applied. These facilitators are illustrated in the quote below, which is one of many similar comments made across the qualitative data gathered.

> *"Okay, so the thing about this evaluation group was that the way that they engaged in understanding the content, the subject matter, the way they absorbed themselves totally to what it is that we were seeking to evaluate….What that demonstrated to me was an organisation that obviously was trying to understand the very essence of what it was that we were trying to achieve here and how it is that we were trying to operationalise it, and then to tailor an evaluation framework that was going to be very conducive to both that operational environment and thinking about the sort of policy considerations that we would need to have as we worked our way through it to then be able to inform government and assist in informing government about the effectiveness or not effectiveness of the proposed approach." (PSVC44)*

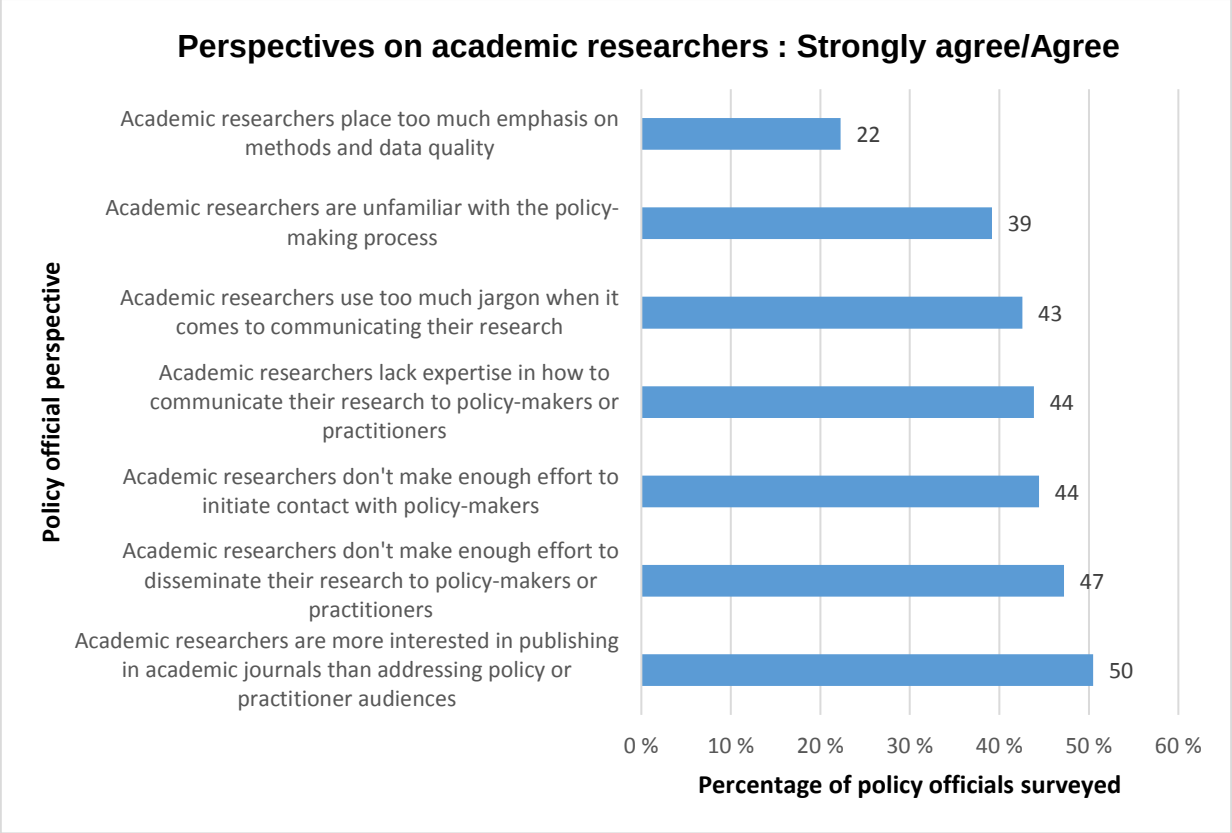
Many policy officials noted that academic researchers could not always be policy knowledgeable of themselves – but that policy officials themselves had a role to play in resourcing and supporting them as part of a research relationship.

> *"…you quarantine the resources to support and walk along with the researchers, check in on how things are going, whether it be for a research purpose or particularly for an evaluation purpose. Then you are more likely to get success in the end. You're more likely to get something that is meaningful to government but also has strong value from an academic perspective." (PSAB64)*

Examination of the quantitative data reveals, however, that policy official perspectives on the capacity of academics to produce policy-relevant research may be less than optimal for supporting a commitment to participating in linkages. As illustrated in figure 28 on the following page, 50 percent of policy officials surveyed felt that academics were more interested in publishing in academic journals than tailoring research for policy and practitioner audiences. Forty-seven percent of policy officials considered that academics did not make enough effort to disseminate their research to policy audiences. Forty-four percent of policy officials reported both that academics did not make enough effort to initiate contact with policy officials and that academics lacked expertise in how to effectively communicate their research to policy and practitioner audiences. Forty-three percent of

policy officials suggested that academics used too much jargon in communicating their research. Finally, 39 percent of policy officials felt that academic researchers were unfamiliar with the policymaking process.

Figure 28 - Policy Officials' Perspectives on Academics in the Context of Research-Policy Linkages



Barriers to linkages

A number of themes around the key barriers to building and sustaining linkage relationships could be identified from an analysis of policy official data. These themes, which are illustrated with examples of supporting data, are presented below.

The nature of the policy process itself acts as a constraint to forming research linkages

Many policy officials highlighted how the very nature of the policy process itself can act as a significant barrier to research uptake in policymaking – and the development of effective research linkages to support this research uptake. Specific policy process characteristics highlighted included political pressures around policy priorities and feasible policy options,

the pressure to produce rapid policy responses and budgetary constraints. Such pressures impact on the extent to which research evidence is valued and sought, constrain policymaker capacity to engage in linkages and can impact on how research relationships are perceived by academic and policymaker participants. As one policy official who was surveyed highlighted:

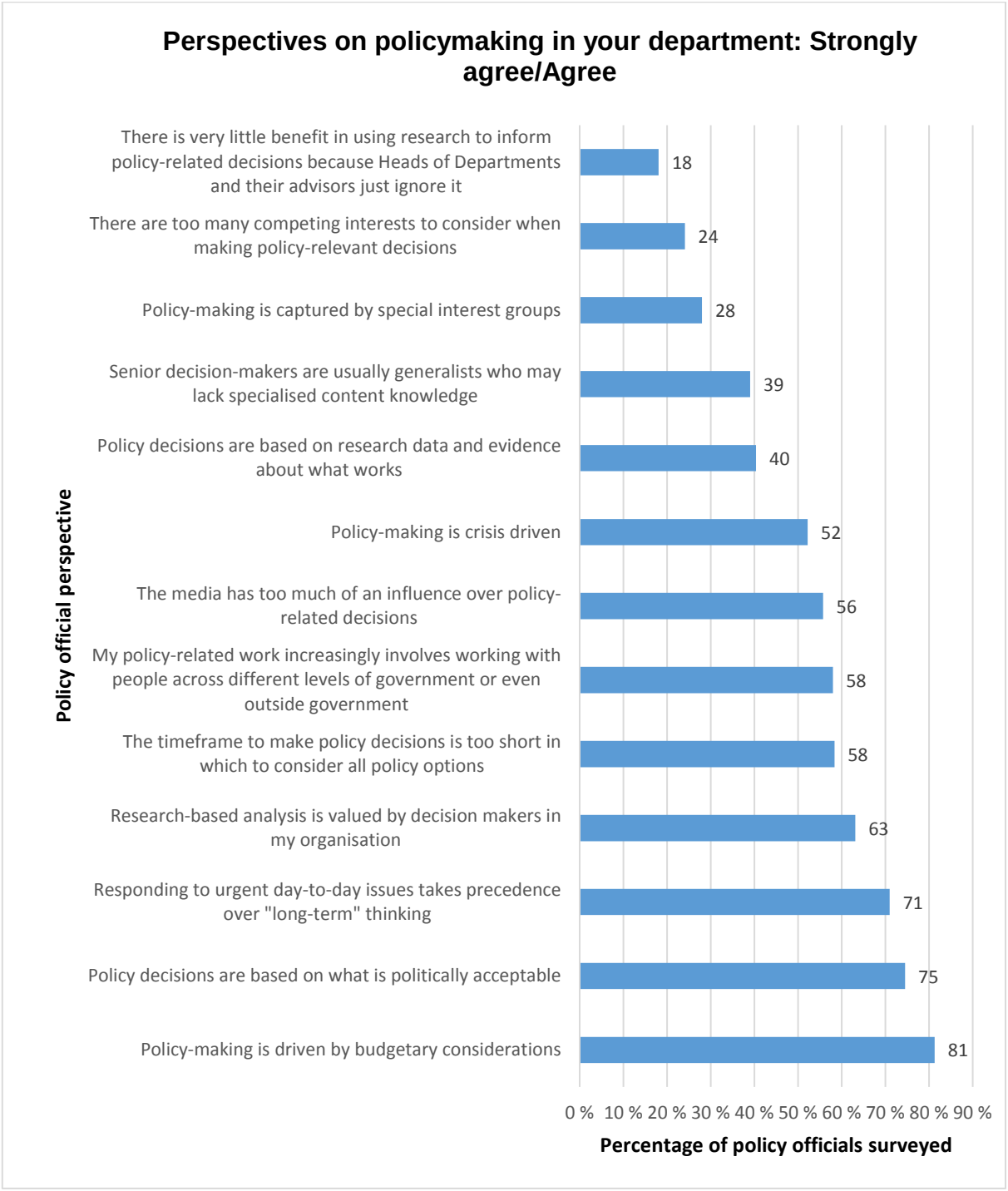
> *"I do not think academic research is currently highly valued and/or frequently utilised by public sector officers (with some exceptions). This is particularly the case in central agencies, where our work often changes rapidly in response to shifting government priorities (particularly driven by media/crisis situations). In this context, there is often a lack of time to actually draw on academic research in our advice to government. It is more likely that we will draw on reports from other government departments or agencies that themselves may have drawn on academic research." (pss119)*

Policy official perspectives around the nature of the policy process itself as a barrier to linkage relationships were mirrored in qualitative data gathered from academics. For example:

> *"A major challenge is timeliness of research for policy decisions. My experience has been that research takes time and the political and policy process has moved much faster - and often by the time the research has finished the policy has moved on. The quality of the research is a bigger issue for academics/researchers who want to do it properly, while policymakers are mainly interested in quick answers." (as4)*

Many of the specific policy process priorities that were reported as barriers to the linkages that support research use in policymaking were readily apparent in the quantitative survey data collected from policy officials. Figure 29 on the following page illustrates policy official perspectives around policymaking priorities and processes in their departments. Of those policy officials surveyed, 81 percent considered that policymaking is driven by budgetary considerations and 75 percent felt that is based on political feasibility. Further, the pressure to respond to urgent day-today issues was cited by 71 percent of policy officials as a barrier to longer term thinking around policy issues.

Figure 29 - Policy Officials' Perspectives on Policymaking Priorities and Processes



Differences in research priorities and perspectives create tensions

This barrier was cited the most frequently across the qualitative data analysed, and goes directly to the issue of cultural differences between academics and policymakers as captured through the highly prevalent "two communities" metaphor (Bogenschneider &

Corbett 2010; Dunn, 1980). The literature suggests that there are professional and institutional dimensions to these cultural differences – and identifies a number of domains where differences can be identified – for example the focal interest of research efforts, the audiences and stakeholders of research, the cognitive frameworks applied to research, interactional preferences and concepts of what constitutes successful research (Bogenscheneider & Corbett 2010). Each of these domains was raised and discussed by the policy officials interviewed, and the tensions created by differences in expectations, preferences and practices between academics and policy officials were considered to have the potential to undermine a linkage relationship.

> *"Academic researchers often ignore the political and budget practicality of when making their recommendations, but these are legitimate constraints in a democracy and therefore should be at least acknowledged. Practicality of recommendations is sometimes represented by researchers as trying to bias or influence research outcomes, when it is in fact trying to make their research of some use to decision makers in the 'real world' of policy." (pss20)*

> *"But for most academics there is no bridge. In one sense, a lot of the stuff which they might do, which relates to public policy, doesn't attract for them points when the ledgers are completed on their academic contribution; of course, their research contribution; and that of the university of which they're a part." (PS1)*

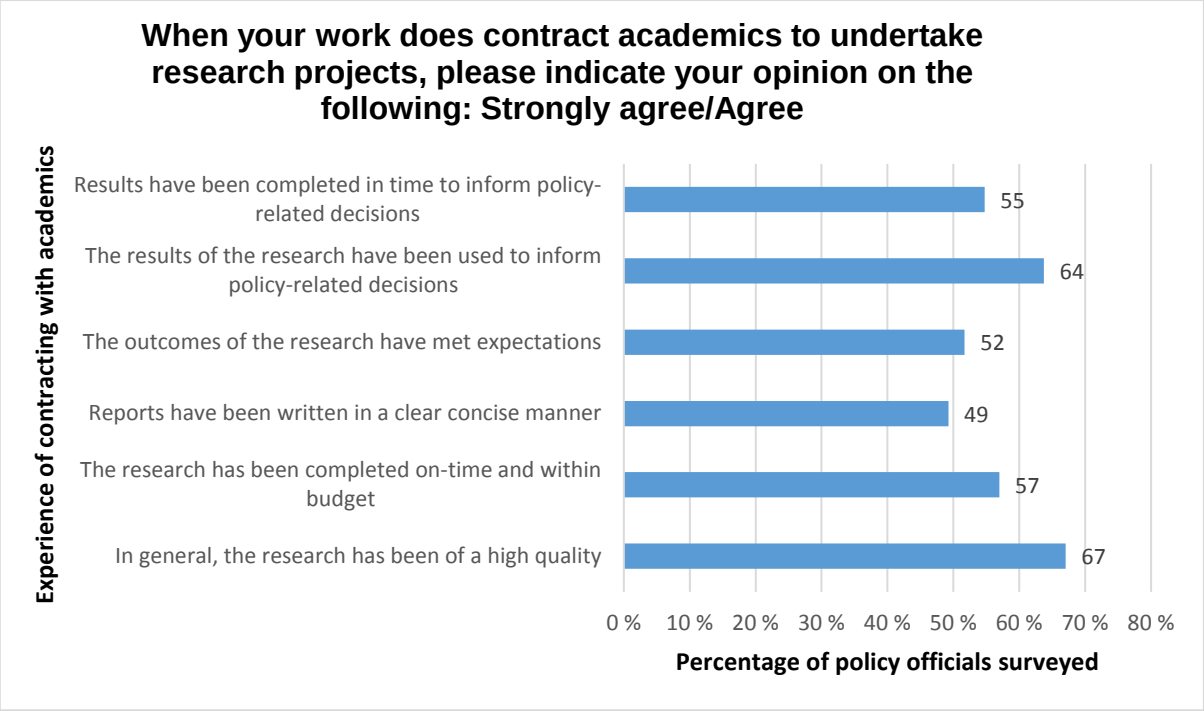
> *"…from the time you agree to participate in something and get it done, to the time the result is produced, the bureaucratic world has kind of moved on to the next 45 items and the people might not be the same anymore." (PS14)*

> *"There is a complete absence of mechanisms to convert goodwill into the practicalities of the academy and the public sector systematically engaging for mutual benefit." (PSN118)*

An examination of the survey data, as outlined in figure 30 on the following page, suggests that contract work with academics was considered successful by many of those policy officials surveyed. Sixty-seven percent reported that completed research was of a high quality. Sixty-four percent suggested that research had been used to inform policy-related decisions, and 55 percent suggested that work had been completed in time to inform policy decisions. Fifty-seven percent of respondents noted that work was completed on-time and within budget, with 52 percent also noting that the outcomes of the research had met expectations. Forty-nine percent of policy officials suggested that reports had been written in a clear and concise manner. This data would tend to suggest that the tensions outlined

above do not necessarily exist in all academic-policy research contract relationships - or if they do there is scope to work through and resolve them either within the context of a contract or over the course of a number of contract relationships. It would be helpful to better understand the circumstances in which a contracted research relationship works well, or where issues are effectively resolved over time, versus one where ongoing tensions and misunderstandings undermine the ability to achieve desired research outcomes.

Figure 30 - Policy Officials' Reported Experiences of Contracting with Academics



Insufficient research capacity within the public sector

Many policy officials highlighted how changes to the structure, focus and practices of the public service in recent years have reduced research capacity within the public sector. Such changes include the loss of specialist research units and positions within the public sector which had previously provided a clear focus for research linkage efforts, a trend toward more generalist recruitment leading to a loss of specialist subject expertise, and less emphasis on research training within the public sector. These changes have resulted in a reduced ability to understand and utilise research across departments, and has impacted on the public sector's ability to effectively commission research. This in turn can create unrealistic

expectations and tensions within research relationships between academics and policy officials.

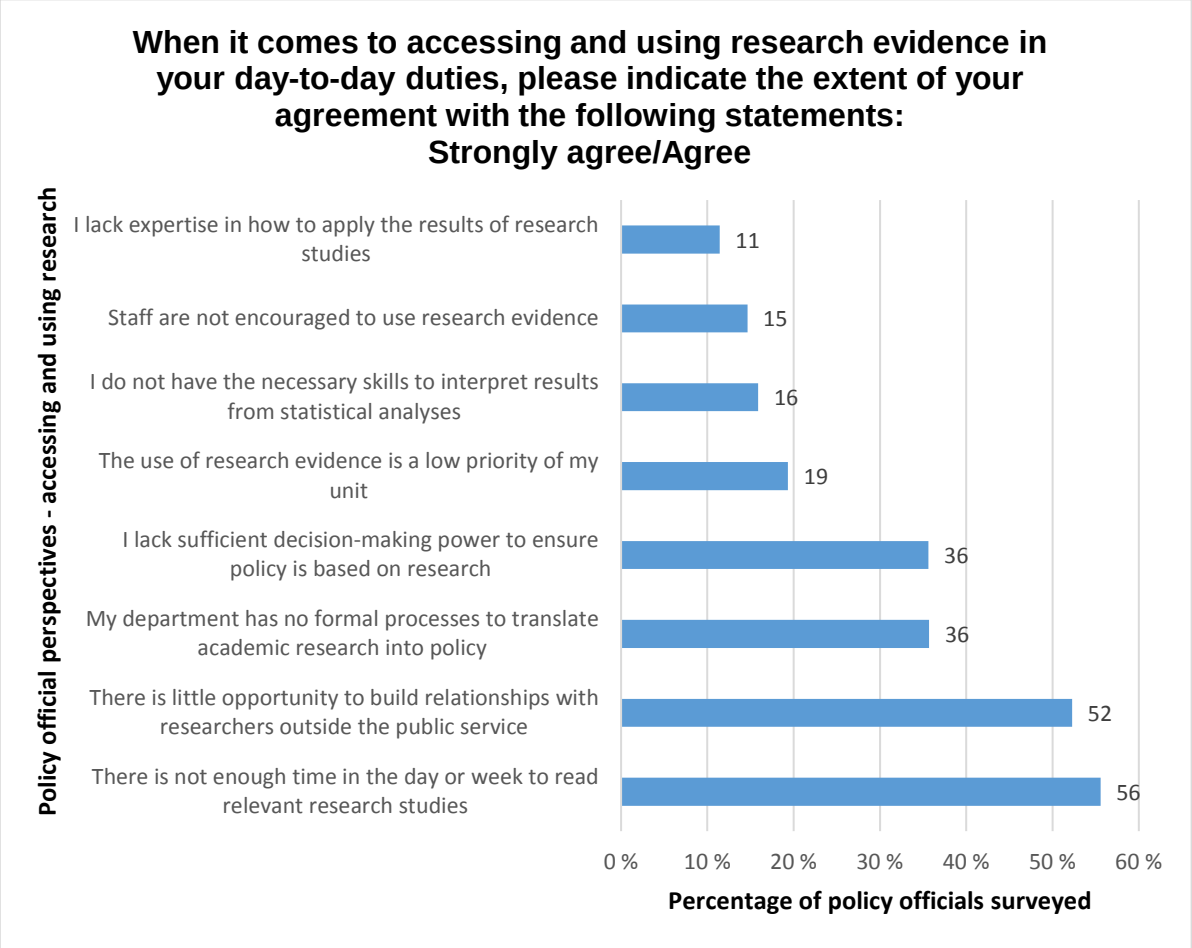
> *"Academic research is not a key driver for the policy work I have undertaken. This is probably because there are very few people with research qualifications…working in senior levels in the department. Most senior staff and staff who actually do the policy work are policy generalists…Use of research is very superficial and instrumentalist, without an understanding of the real issues or debates in the field." (pss17)*

> *"We needed to maintain enough expertise to get the research questions right, to understand the quality of the information we were getting back and how it could be exploited." (PSAB81)*

Qualitative themes relating to the impact of insufficient research capacity within the public sector on creating and sustaining linkages were also evident in survey data responses. As illustrated in figure 31 on the following page, 56 percent of policy officials report that there is simply not enough time to read relevant research. A loss of the specialist areas that source, filter and disseminate relevant research documents within departments would make such time pressures around research use more keenly felt by policy officials. Numerous policy officials suggested in their interviews that these specialist units within departments have often also provided a focus for initial academic contact with a department and, in some departments, a focal point for relationship-building and maintenance. Fifty-two percent of policy officials surveyed reported a lack of opportunities for relationship-building - the dismantling of research areas within departments may mean one less significant opportunity within a department.

Interestingly, only 16 percent of policy officials reported personally lacking the skills to interpret statistical results and 11 percent reported a lack of expertise on applying the results of research studies as shaping their use of research in their day-to-day duties. This may suggest that perceived departmental capacities around research capacity versus individual policy official capacities are more significant in shaping policy official perspectives about their capacity to build relationships with academics. This is an issue that it may be useful to explore via further research.

Figure 31 - Policy Officials' Perspectives on Workplace Research Production and Uptake Capacities



Lack of networks/forums to build relationships

Many policy officials bemoaned the lack of existing forums that enabled researchers and policy officials to communicate about research and to develop the relationships that support ongoing communication.

> *"…we're just not getting academic research to actually come and talk with government about the sort of work that they are doing or considering doing and how it might align with…areas the government is also looking at." (PSVC44)*

Policy officials felt that these forums were particularly critical in policy contexts where research evidence can be required very quickly but quality research products are time consuming to produce. Such forums enable relationships to be formed such that research knowledge can be produced and disseminated more consistently over time. Further, when

there is demand for specific research products to meet a policymaking need, existing work can be more rapidly identified and new work can be commissioned more quickly.

The value and importance of a range of knowledge brokering organisations, including think tanks, research institutes and peak bodies, who often adopt dissemination/clearinghouse functions in addition to relationship building activities, were frequently raised in this context.

> *"…There's quite a lag time for research or evaluation work that is commissioned that doesn't often easily align when other stars are lining up, when you have those moments of political and policy attention to issues; which I think goes to the benefit of having standing institutional arrangements that deliver a program of strategically relevant research and evaluation, like the AHURI model or like Centres of Excellence." (PSQC93)*

This theme around lack of networks and forums to build relationships was clearly evident in the survey data collected from policy officials. As noted above, and illustrated in figure 31, 52 percent of policy officials reported that there is little opportunity to build relationships with academic researchers.

In summary then, policy official perspectives around the facilitators for linkages suggest that linkages are most likely to be made in contexts where policy-relevant research is valued, that access to linkages is enhanced by existing connections and relationships, that the reputation and credibility of an academic is very important in facilitating and sustaining linkages, and that linkages are most likely to be effective where academic partners are policy knowledgeable and committed to producing policy-relevant research. In terms of barriers to linkage relationships, policy officials reported the very nature of the policy process, differences in research priorities and perspectives, an insufficient research capacity in the public sector, and an absence of existing networks and forums to facilitate relationship-building as key challenges. The chapter now moves on to outline academic perspectives around the key facilitators for and barriers to building and sustaining effective linkage relationships with policy officials

ACADEMIC PERSPECTIVES ON THE FACILITATORS AND BARRIERS TO LINKAGES

Facilitating linkages

Academics were asked by the survey to identify the benefits of participating in research collaborations. A number of benefits were highlighted[30], including that research collaborations increase academics' industry contacts[31]. This finding suggests that research collaborations in themselves can expand networks and can seed further collaborations. This ultimately means that linkages, of themselves, help to facilitate linkages with policymakers. Analysis of academic interview data confirmed this finding - and provided further insights into how research collaborations are beneficial in facilitating further and/or ongoing linkages. Interview data analysis also revealed a number of important facilitators not suggested via the quantitative data. Key facilitators identified via the interview data are discussed below.

Interest in policy-relevant research – coupled with a belief that linkages are the best way to carry out this research

The belief that research utilisation is more likely to be an outcome of research processes supported by linkages was cited in many of the academic interviews analysed. A number of academics expressed how this was a strong motivator to pursue linkages in a context where there can be many barriers to research collaborations. All of the academics who had participated in policy-relevant research activities expressed an interest in engaging in this type of research work. The stronger the interest and track record of this work, the more likely it was for the academic to also speak of the importance and value of linkages in pursuing this type of work. It is important to note that not all of this policy-relevant work was considered to be "applied" research. A number of academics, in fact, spoke of more basic forms of research that had policy-relevance and how linkages supported their efforts to disseminate the outcomes of this work. Others discussed how more "basic" research supported/complemented "applied" policy-relevant research.

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[30] The benefits that academics reported for participating in research collaborations are illustrated in table 13, presented in chapter six.

[31] Sixty-five percent of academics surveyed reported increased industry contacts as one of the benefits of participating in research collaborations.

Of the sample analysed, many academics expressed a view that effective engagement and the collaborative research process were in themselves highly important in the production of policy-relevant research. Academics expressing this view noted how effective engagement and collaboration shaped the relevance and rigour of research questions and the research processes that they had participated in. A number noted how collaborative processes can create greater joint ownership of products. Many highlighted how linkages facilitated the research transfer process by enabling delivery of research outcomes to be much better tailored, and noted how research outcomes can be much more readily accepted in the context of a relationship.

In terms of dissemination, several academics highlighted how linkages enabled a more "dynamic" process for research transfer, where research is not only acquired but interpreted and applied within the context of the linkage. This was considered to be a much more effective strategy for promoting research impact.

Access is facilitated by existing networks/relationships

Academic interviewees highlighted, sometimes repeatedly, how access to policymakers for linkages - particularly the sorts of linkages required to support collaborative research project efforts - is facilitated most by existing networks and relationships.

This is not only considered a way for busy policymakers to know who might be helpful around a policy issue/and for academics to get a foot in the policy door, but interviews suggested that a pre-existing relationship meant that an element of trust already existed between participants in the research linkage. Pre-existing relationships also meant that participants were more likely to have some commonality to bring to the linkage. For example, some pre-existing relationships were based upon academics having worked in the public sector or vice versa, which meant there was already some shared knowledge and understanding of each other's context and priorities when the research collaboration commenced.

As several academics with a strong history of collaborative research work then stressed, the development of effective linkages in themselves thus enable access to future and/or ongoing policy-related research opportunities, as these linkages build networks and reputation. For example:

> *"But working in an area, you build up - you know, it's the contacts that you build up, as well as the knowledge. So it's the contacts and credibility that I think tend to leach from one project to another." (ACA59)*

The right reputation/credibility creates both access and influence for academics

Flowing from the need for existing networks and relationships, but not entirely defined by these, many academics emphasised the importance of having the right reputation and professional credibility. Reputation and professional credibility were viewed to be fundamental in creating the linkages that support policy-relevant research, and to having influence within these linkages. Further, academics suggested that they can act as a proxy for trust in the early stages of a research partnership.

While the academics interviewed used these terms interchangeably, an examination of discussion around these issues in the interviews suggested that there were, in fact, two key dimensions to their experiences, which need to be considered separately.

Firstly, the dimension that will from now be referred to as "reputation", involves a track record of effectively working with policymakers to produce policy-relevant outcomes. Many academics spoke of perceptions around their performance relating to how well they worked with others within a collaborative project, how timely and targeted their research products were, how well they understood the policy process (and were sensitive to what this meant for research outcomes), or how well they were able to translate and communicate research findings to a range of target audiences (for example advice for Ministers versus contributions to publicly available reports). Where such perceptions are positive this can create ongoing demand for an academic to participate in collaborative research processes with policymakers. The perception can be created directly with policymakers, or be built on "word of mouth" between policymakers. This reputation dimension is reflected in the comment below, which is just one of many similar comments throughout the interviews analysed.

> *"It's a kind of reputational profiling matter. If – especially in commissioned and applied work – if you complete work which parties – whether they're government or industry or community organisations – feel get them where they want to go, the word gets around." (ACA16)*

Secondly, many academics felt that "professional credibility" was their core contribution to research linkages and thus a key reason for being sought out by policymakers interested in developing linkages. Professional credibility relates more to perceptions around how

"expert" an academic is in their field. A number of academics highlighted the importance of having a track record of publishing work in prestigious journals and other traditional academic outlets as a fundamental building block for building this professional credibility. For example:

> *"…when this pendulum comes around the things where my work is hot, then the fact that I will have been doing it for ten years I think adds a lot of credibility. Whereas a lot of researchers tend to follow whatever is hot so they never build up a body of work." (ACA42)*

However, some academics felt that, while publishing in traditional outlets led to professional credibility among academic peers and other experts, credibility beyond this could be created more directly by also publishing in a range of non-academic outlets. Targeted promotion strategies cited included reporting research outcomes through the media, or by publishing in the papers, newsletters and other key documents of think tanks, policy forums and interest groups.

Both the reputation and professional credibility dimensions were considered to be important to building and sustaining effective linkages by most of the academics who discussed these facilitators in their interviews, as illustrated by the comment of one academic below:

> *"In terms of my own involvement, it certainly facilitated getting access to people; the fact, if they knew who I was. I think part of it was an element of credibility that I knew what I was talking about as well. It wasn't just the ivory tower academic coming in; but it was somebody who they knew the material." (ACA1)*

The policymaker partners need to be research knowledgeable and receptive

While the facilitators of linkages outlined above are within the scope of academics to influence, an analysis of academic interviews consistently suggested a number of policymaker related facilitators which shape a capacity for effective linkages. Academics suggested that collaborative research initiatives were most likely to be successful where policymaker partners are research knowledgeable, have a firm commitment to the value of the research and to the research process (and the more senior the commitment the better), have a good understanding of what the research can deliver and where there is a culture that is open to the outcomes of research. These facilitators are illustrated the quotes below, which were just some of many similar comments made across the interviews analysed.

"I guess a good precondition, indeed, is that someone knowledgeable about research is needed, to work well as a research partner." (ACA21)

"…the thing about that was this project was one that had champions in the department right across the top levels of the department….they were all firmly committed…." (ACA53)

"I think having a good understanding of the issues and what they could expect from my work and so on; I think that was really important." (ACA58)

"But I think their culture was open. They didn't go into defensive mode. They sort of said oh my god this is shocking isn't it. We need to do something about it. Whereas I can imagine other organisations, who would have gone into defensive mode in various ways." (ACA5)

Barriers to linkages

Data collected via both the survey and interviews with academics aimed to identify and explore the barriers to collaborative approaches to research between academics and policymakers. These barriers are identified and discussed below, drawing first on the results of survey data before moving on to explore identified barriers more fully by presenting themes identified via an analysis of the interview sample.

The table on the following page outlines responses to two survey items, which aimed to identify a number of specific problems with, or barriers to, research collaborations.

Table 13 - Problems with Research Collaborations - Academic Perspectives[32]

Problems with research collaborations	% agree/strongly agree
Time required to co-ordinate work between different partners	81
Different research orientations	80
Complexity of contractual arrangements – delays in research process	72
Time consuming and cumbersome ethics process	71
Networks and partnerships undermined by turnover of contact staff	67
External partners don't appreciate full costs of research	59
Insufficient networking forums	54
Confidentiality requirements restrict publication	54
Inadequate university resources to support research partnerships	52
Collaborations subject to delays that impede timely publishing	46
Potential to lose ownership of intellectual property	42

The barriers cited most often by academics, as illustrated in this table, include a combination of challenges around practical aspects of the research process itself (such as complex and time consuming contractual and ethical processes), resourcing issues (including insufficient time allocated, insufficient university resourcing, insufficient research funding, a lack of networking forums), differences in expectations and priorities between academics and policymakers (for example, different research orientations), and frustrations around the need to meet university imperatives within the context of this kind of research (particularly the need to have access to intellectual property rights and publish in a timely way).

An analysis of interview data reflects many of these barriers. However, key themes around barriers to linkages identified via the interviews are not all expressed or emphasised the way

[32] Table 13 is derived from responses to academic social scientist survey item 22, "Problems with research collaborations"; and linkage-related responses taken from survey item 20, "Report barriers to research transfer and uptake".

that these barriers appear in the table. Issues around resourcing and time were raised, for example, but they were considered to stem from a range of cultural and institutional demands that were of more fundamental concern to the academics interviewed. The impact of the Excellence in Research (ERA) measures within universities was considered a key driver of the cultural and institutional demands that create barriers for policy research capacity amongst academics, as it was cited consistently across the interviews analysed. Other themes raised frequently across the interviews analysed were the climate surrounding the policy issue receiving research attention, the impact of differences in research orientations and priorities between academics and policymakers, a perceived lack of research capacity within the public sector, and the challenges created by a high turnover in policy personnel. These themes are outlined in more detail below.

ERA, a key performance measure for academics, fails to recognise policy work

ERA measures are key performance measures for academics in Australian Universities, and essentially endeavour to measure the quantity and quality of an academic's published work. Nearly all of the academic interviews analysed highlighted how ERA fails to recognise policy work. The academics interviewed reported that they were under significant pressure from within their Universities to publish extensively within well-regarded academic journals. Policy work was considered to be time consuming work - involving significant effort in establishing projects, communicating and coordinating with policymaker partners across the life of a project, and translating and disseminating research results at the conclusion of a project. Publishable papers needed to be produced in addition to this workload, and academics reported many difficulties around intellectual property and the ability to publish. As policy work is currently not effectively measured as a component of academics' outputs, the challenges associated with balancing the required time and resources to undertake policy-relevant research with the need to produce measureable outcomes can mean academics choose not to engage in this type of work at all. The quote below is one of many across the interviews analysed that illustrates the impact of ERA on capacity to engage in policy-related research:

> *"…say if you're a Level B lecturer in the university, and you've got to decide whether you're going to take on a piece of applied work which might result in reports but you're not too sure – and it will run over 12 months and it's going to take you away*

from your academic writing. Yes, you may get a flow back, and you may get credit. You may be able to use the data, but it's a bit down the track. It's very [unfortunate] that the Level B person will likely say, it's not going to help me in my career."(ACA16)

Interestingly, ERA was often cited as a key barrier to policy work capacity by academics in later phases of their career. However, many of these academics found that it was a less pressing issue personally. There seemed to be two dimensions to this position for late career academics. Firstly, many of these academics already had a significant track record of publishing in reputable journals and/or were in a stage of their career (for example approaching retirement) where the need to publish in academic outlets was less important. Secondly, the experience these academics had in undertaking collaborative policy research work meant that many of the tasks were less time consuming. For example, academics with lots of experience in collaborative policy work had a more well-developed set of relationships and so spent less time on trust-building activities. These academics reported more highly developed skills and strategies for translating and disseminating research outcomes effectively to policymaker target audiences. They were better able to address intellectual property issues proactively, and so access to material for publication was less fraught. They were also more experienced with publishing in academic outlets, making the balance of academic and non-academic publication of results more manageable.

Climate surrounding policy issue of interest shapes public sector agency priorities at the time

As noted earlier in the paper, policymaking is a complex, political process that is shaped by a broad range of influences, and as such the uptake of research in this context is far from straightforward. Most of the academics interviewed were realistic about the scope of influence of academic research evidence in policymaking. However, a number still expressed frustrations around how political agendas, values and community opinions could be potent forces undermining research collaborations themselves, in addition to limiting the uptake of research outcomes. For example:

"That one did not work at all, that was a key agency. Everyone just seemed to be running around, trying to pursue the agenda of the day. They were almost into internal crisis management for much of this time. So that was the most significant, I think, failed relationship." (ACA14)

> *"I think there were obviously other processes going on around that particular project that were outside of the research. There was no transparency about that in terms of what the research was about." (ACA25)*

Academic interview respondents reinforced policy official perspectives around how political and policy contexts fundamentally influence opportunities for meaningful linkages between academics and policy officials – with these cited as shaping the extent to which governments initiated forums to create and sustain connections with research providers, and also the degree to which departments pursued external research inputs for their policy work.

Some academics noted how the climate surrounding a policy issue could shape specific departmental institutional practices and processes around policymaking, which could undermine a research collaboration process. For example, where a policy issue was sensitive, political and highly topical, departmental preferences for extensive and regular briefings, and a cautious approach to decision-making, could create delays and "road-blocks" to progress on a research project, and lead to frustration and discontent in research relationships.

Academics who reported a past position within the public sector and/or a history of linkage relationships with policymakers often reported that they felt themselves more able to navigate highly political/difficult research collaborations with policymakers. These academics highlighted the importance of being responsive to policymaker concerns and needs, while endeavouring to protect their right to publish results from collaborations. The perceived "success" of research projects was not only measured by the nature of research outcomes, but the extent to which relationships that would support ongoing dialogue and research efforts were built. These academics also spoke of being "strategic" or "opportunistic" in their research endeavours, recognising that persistence would ultimately create occasions for research impact.

"Academic" versus "policy-relevant" research – differences in research priorities and perspectives create tensions

This barrier was cited frequently across the interviews analysed, and goes directly to the issue of cultural differences between academics and policymakers as captured through the highly prevalent "two communities" metaphor (Bogenschneider & Corbett 2010; Dunn, 1980). The literature suggests that there are professional and institutional dimensions to

these cultural differences – and identifies a number of domains where differences can be identified – for example the focal interest of research efforts, the audiences and stakeholders of research, the cognitive frameworks applied to research, interactional preferences, and concepts of what constitutes successful research (Bogenscheneider & Corbett 2010). Each of these domains was raised and discussed by the academics interviewed, and the tensions created by differences in expectations, preferences and practices between academics and policymakers were considered to have the potential to undermine a linkage relationship.

Academics reported that these cultural differences created disincentives to engage in policy-relevant research at all:

> *"I think in many ways the social sciences are quite backward around their engagement with government industry and the community sector. We don't understand the difference between research and research translation. We typically don't, in many places, value applied research and we're often too wedded to internal kind of debates, you know, within disciplines that lack relevance outside of those narrow disciplinary frameworks." (ACA41)*

> *"In some academic cultures doing this kind of work is seen as selling out, you know social scientists are really seen to be better as sort of you know, critics, sort of operating on the outside. People believe you compromise your independence if you try and do work that is heavily engaged." (ACA41)*

Once the decision is made to engage in joint research efforts, "cultural" differences continue to drive tensions within linkages, with academics and policymakers frequently valuing and pursuing different research directions and products. Many academics, thus, noted that the key to a successful linkage was in being able to understand and accommodate such differences, in order to ensure that the diverse needs and expectations of each group were met. For example:

> *"You've got to relate and keep your external partners interested. You have to be attentive to what they want from it which could be different to what you, a serious academic, would want from it. So if they really want some sort of guidelines or lessons communicated at a certain level for public servants, that's a different task from a more serious academic piece."(ACA14)*

> *"It's become clear to us that part of what we have to do ….. is not only satisfy the sort of the requirements around the research, but, there's a whole set of additional requirements which we had to clarify, which involve essentially group feeding them things that they can pass up so that they can manage their sort of political masters. So they are constantly looking for us to do things in addition to the research and*

essentially to - as soon as we come upon findings that we think are sufficiently sort of robust that they can be publicly defended - you know, we need to pass that kind of information on. They can feed it up to the Minister; they can do press releases or whatever they need to do. As soon as we started doing some of those additional kinds of things then the relationship with the department improved, but to the extent that we just stick to what's in the contract, then we had some real difficulties with them." (ACA41)

Insufficient research capacity within the public sector

Many of the academics interviewed highlighted how differences in research orientation between academics and policymakers can be a source of tension that can undermine linkages. A number of academics considered that research orientation differences were, at least in part, driven by a diminishing public sector research capacity. This perception was expressed most strongly within the interviews of academics having a history of many years of working collaboratively with public servants on research projects. These academics outlined a number of changes to public service structures and practices that impacted on public sector research capacity – including the loss of special research units and positions within the public sector which had previously provided a clear focus for research linkage efforts, a trend toward more generalist recruitment leading to a loss of specialist subject expertise, and less emphasis on research training within the public sector (resulting in a reduced ability to understand and utilise research across departments). Academics felt that this had been shaped, in large part, by changes to public sector resourcing and functions over time. Academics reported that their experience of insufficient research capacity within the public sector was not only relationship tensions related to misconceptions about the research process and research outcomes, but a reduced ability to commission research effectively in the first place.

"They think you've got to have a clearly articulated research question. That itself requires research. So in some sense they do need an in-house capacity because how can they commission good projects? The people who commission research have got to themselves be a researcher to a degree." (ACA53)

Turnover in personnel

Finally, a key barrier to linkages cited across many of the academic interviews, involved the frequent turnover in policymaker personnel.

The frustrations created by turnover on policymaker staff are illustrated in the quotes below:

> *"The changes that have occurred across the public sector particularly and in the Commonwealth government specifically that have resulted in this roving band of middle and upper level policy managers it's incredibly confronting. You're having to build and rebuild relationships." (ACA60)*

> *"You just need to have a group that doesn't churn. It's impossible, but it's just so important. The turnover problem can kill a project. (ACA18)*

Many academics highlighted how turnover of policymaker staff created a number of specific project management issues. Examples of this included damaging conflict over the intended scope and products of research projects where there was personnel changeover between the commencement and conclusion stages of the project. Further, several academics noted how they had experienced a loss of interest and support for a research project altogether when initial policymaker participants moved on before the project's completion. These project management issues have the potential to impact on the quality of relationships developed during the course of collaborations, and can ultimately lead to the demise of collaborations altogether.

Policy staff turnover was also reported to have broader impacts by academics, in that it creates challenges for building and maintaining the relationships/networks that support ongoing dissemination of work. Further, it was cited by several academics as a factor that makes things more difficult for academics to initiate future research initiatives.

In summary then, academic perspectives around the facilitators for linkages suggest that an interest in policy-relevant research activities, existing networks, academic reputation and credibility and having policymaker partners who are research-knowledgeable are important for building linkage relationships. Key academic themes around the barriers to linkages, highlighted by academics were institutional disincentives (naming ERA as a specific example of this), discordant priorities in social policy contexts, an insufficient research capacity within the public sector and turnover in policy official personnel. These were all frequently noted by academics as creating significant challenges for building and sustaining relationships between academics and policy officials.

CONCLUSION

A focus on identifying and exploring reported barriers and facilitators to linkages, which have been little researched and are not well understood, provides a number of important insights

for understanding the extent to which linkage strategies might be employed to proactively enhance EBP.

Both academics and policy officials suggested that the value placed on the kinds of research that support policy processes is important in providing the fundamental incentives to engage with each other via linkages. For policy officials this means that the role of research in policymaking is understood and valued at all levels of their organisation. For academics, there needs to be an interest in and commitment to undertaking policy-relevant research. The degree to which research is valued by either group, is complex, as it shaped by a broad range of inter-playing factors – with academics and policy officials citing personal and professional interests, organisational priorities and research and policymaking contexts amongst these.

Access and influence were significant issues in creating and sustaining effective linkages to support research use reported by both policy officials and academics. An analysis of the data revealed that existing networks and relationships could create access to research collaboration opportunities and thus further linkages.

Having the right reputation and professional credibility could also create access to collaborative research opportunities, and could enhance an academic's access to research opportunities and influence within linkage relationships. It is interesting to note that the impact of reputation and credibility dimensions on linkages seems to be slightly different to the impact on research uptake alone. Other studies have reported that professional credibility alone can be sufficient for the research products of academics to be adopted by policymakers where these are readily accessible (Haynes et al 2011a & 2011b). Academics for this study suggested that while the professional credibility needed to create access to linkage opportunities with policymakers can be built partially via traditional academic publishing activities, more targeted promotion of research activities and outcomes is often required. Targeted promotion strategies cited included reporting research outcomes through the media, or by publishing in the papers, newsletters and other key documents of think tanks, policy forums and interest groups. These academics considered that this was the most effective way of building a professional profile with policymakers and the broader community. Policy officials interviewed for this study suggested that, while the professional credibility needed to create access to linkage opportunities with policy officials can be built

partially via traditional academic publishing activities, this is only part of the picture. Because it is an academic researcher's "standing" within the wider community that is often critical for helping to ensure that research outcomes can be accepted by a broad public audience, targeted promotion strategies need to create a "profile" publicly for the academic. Credibility building strategies that help to build this "standing" include reporting research outcomes through the media, or publishing in the papers, newsletters and other key documents of well-known think tanks, policy forums and interest groups.

The interactive nature of linkage and credibility/reputation building processes is apparent in the material presented in this chapter, with existing relationships contributing to an academic's reputation, credibility and access to new relationships, which then builds the academic's network, reputation and credibility, which further builds access to more opportunities for collaborative research opportunities and so on. Conversely, a lack of relationships and networks creates challenges for accessing collaborative research opportunities and creates greater challenges for building the reputation and professional credibility sought after by policy officials. Further thought, clearly, needs to go into proactively addressing these important issues, so that academics with an interest in engaging in policy-relevant research, particularly early career academics, get "a foot in the door" in the first place.

Detailed consideration of the key barriers to linkages, reported by both policy officials and academics, reveals that a number of the barriers to research uptake[33] are, in fact, also inhibitors for building linkage relationships. Cultural differences between policy officials and academics is perhaps the most significant of these.

The role of cultural differences in forming and sustaining effective linkages between academics and policy officials was highlighted throughout the barrier and facilitator themes identified in the data analysed for this paper. These cultural differences presented as discussions around the need for commonality of understandings, experiences and values

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33 Barriers to research uptake commonly identified in the research utilisation literature were noted in table one, "Accounting for the underutilisation of research in policymaking" (presented in chapter one), and table four, "Barriers and facilitators to research utilisation" (presented in chapter two).

around research between academics and policy officials in order to support linkages. Specifically, a common knowledge base around research and research methods, shared understandings of the policy process and the role of research within the policy process, and a joint commitment to effective use of research were considered very important for initiating and sustaining effective research relationships. Where commonality did not exist in research relationships, both academics and policy officials reported a much greater likelihood of tension, conflict and, ultimately, the demise of research collaborations. Bad experiences within a collaboration further impacted on the likelihood of future relationships and collaboration opportunities.

Given that the role of linkages in the context of the research utilisation literature has often been considered one of overcoming the "cultural barriers" between the "two communities" of research producers and end users (Caplan, 1979; Wingens, 1990; Lomas, 2000; Gibson 2004; Bogenschneider & Corbett 2010), such findings would suggest that linkages may not be the simple panacea to overcoming the cultural and institutional differences between policy and academic spheres that they have long been considered. Rather, this research suggests that a certain degree of "common ground" needs to be put in place to create the capacity for effective linkages in the first place.

Having explored the barriers and facilitators to establishing and sustaining effective linkage relationships in this chapter, the thesis now turns to the task of presenting data findings that illustrate the value of linkages for research utilisation. The following chapter draws on the material presented in the thesis thus far, as well as a more focused analysis of quantitative and qualitative data sources, to explore how academics and policy officials consider linkages support research use in policymaking processes.

CHAPTER 6 - THE SIGNIFICANCE OF LINKAGES IN SUPPORTING RESEARCH IMPACT

INTRODUCTION

The preceding findings chapters of this thesis have provided a picture of the broad range of ways that academics and policy officials connect with each other to support research use in policymaking processes. They also explored the barriers and facilitators for connecting in these ways. This chapter provides the final piece of the linkage picture by outlining, from the data, more specifically how policy officials and academics consider linkages support research use.

The chapter also presents the results of multiple linear regression analyses undertaken on academic and policy official survey data to establish whether there was, in fact, a relationship between participation in the range of linkage activities identified and reported research impacts demonstrated in these data sets.[34] Discussion of the results of these regression analyses has been positioned in this chapter, in order to take advantage of all of the broader analysis undertaken for this research project to interpret results.

The idea that linkages were important in connecting research and policy worlds, and in facilitating the impact of social research use in policymaking, was a strong theme across all of the datasets analysed for this project. This was evident from the large number of general comments made by academics and policy officials, for example:

> *"Academic research and collaboration with researchers is critical to ensure that policies are realistic, accurate and impartial." (pss10)*

> *"I think that more should be made of this activity as being a partnerships. If you have a good relationship with policymakers and practitioners and they respect/trust you and you them, then the chances of research being done, it being useful, and it being used, and it getting to make a difference is much higher." (as62)*

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[34]Findings for the policy official regression analysis have previously been published in the following paper:

van der Arend, J. (2014). "Bridging the research/policy gap: policy officials' perspectives on the barriers and facilitators to effective links between academic and policy worlds." Policy Studies **35**(6), 611-630.

The value and usefulness of linkages was also discussed in much more specific ways in the context of interviews – with academics and policy officials both generalising about their experiences and offering illustrative examples to outline the particular ways that linkages support research use. The next section of this chapter draws on this discussion to present key themes around policy officials' and academics' perspectives on the significance of linkages.

POLICY OFFICIAL PERSPECTIVES ON HOW LINKAGES SUPPORT RESEARCH USE IN POLICY CONTEXTS

Chapter four presented material from the policy official survey illustrating a wide level of policy official involvement in linkage activities that support relationships with university researchers directly. Others were also involved in intermediated linkages via internal organisational knowledge brokering staff. While the overall picture pointed to a clear trend for policy officials preferring to obtain information from internal sources over external sources, relationships with academic researchers were favoured over other sources of external knowledge and drawn upon next after internal sources. These participation patterns, in themselves, suggest that linkage activities are a valued and useful element of policy officials' policymaking roles.

Analysis of the qualitative data revealed that policymakers consistently spoke of at least one, and frequently several, ways in which linkages support research utilisation in policy contexts. Four broad themes around the ways in which linkages support the use of research to support policymaking processes could be identified from my analysis. These were - creating access to research; supporting more effective research translation; underpinning the co-production of research products; and building capacity or creating opportunities for capacity-building. Each of these themes is briefly discussed below.

Creating access to research products and initiating research production activities

In terms of dissemination of research, many policy officials highlighted that they either experienced difficulty in finding relevant research or were overwhelmed by the task of making sense of the large quantities of research available. Relationships were frequently cited as the source of new research knowledge, or assisted in the process of identifying key research products for a specific policy task. Policy officials described becoming aware of

research via a broad range of channels involving personal interaction - including regular conversations with pre-existing research contacts, ongoing relationships with prior research partners, participation in a variety of forums – or via the pursuit of more formal and targeted relationships with research organisations. For example:

> *"A lot of research we come across is because we talk to somebody." (PSNC92)*

> *"I didn't have those answers so I had to seek out where those answers were - because of my natural preference to talk to people, ask and understand. So I've been in the space now eight years - over that time you build up relationships with individuals." (PSVE1)*

> *"Individuals within the department would also have relationships with particular universities that they know have an interest in their particular policy priorities." (PSFC120)*

These relationships can also be important in initiating research production activities via contracting arrangements and/or specific project collaborations, as illustrated in the comments below:

> *"Also where we've got a particular issue we'll pick out particular academics that have a degree of expertise on an issue. To some extent how that occurs is more ad hoc, it's someone knows someone, someone from within government points us outside." (PSVP66)*

> *"I think it's a question about the relationship and building bridges rather than go, well, in such a policy area X this is how research would help." (PSNP125)*

> *"…we have been able to piggyback off that relationship for other research or other reports from research on similar work." (PSNC97)*

> *"So I think it is good having a relationship because then you can modify things and use that as the springboard for new work as well." (PSNC97)*

Supporting research translation

Many of the policy officials interviewed noted the importance of research being applied to its specific context if it is to be influential in policymaking processes. This involves researchers and/or policymakers "shaping" research findings around identified policy priorities - taking into account a wide range of factors such as prevalent values, resource availability and dominant approaches to existing service provision. The need to demonstrate the relevance of important research findings to suit specific policy contexts, and the difficulties faced by

academics who are less familiar with policymaking processes in doing this, is illustrated in the policy official's comments below:

> *"But you've also got to shape it - how it fits politically as well. I think there's a bit of a disconnect there in the way that that gets done, whether it be internal research or coming from academia." (PSQW27)*

> *"Part of it too I think is the way that research is able to be sold and how it can be incorporated into policy development. Sometimes the argument is too technical." (PSQW27)*

A number of these policy officials, however, then highlighted how linkages enabled a more "dynamic" process for research transfer that better supports research "shaping" efforts. Where strong relationships exist, research is not only acquired, but can be mutually interpreted and applied to specific policymaking challenges. Linkages make this possible by supporting ongoing communication between research partners about the focus of research, desired products, and desired policy outcomes. Thus, policy officials considered that research undertaken in a context of strong linkages was a better way for producing research that will have policy influence. For example:

> *"Yeah, I would say that if that medium of accessing information is built up in a way where there's a dialogue about understanding and translating it, then I think that's probably a better way." (PSVE12)*

Underpinning research co-production

In addition to supporting effective research translation, many policy officials expressed a view that effective co-production via collaborative research processes was highly important for producing policy-relevant research products.

Policy officials considered that linkages enhanced research co-production largely because they enabled sufficient "common ground" and trust to be built between partners. However, linkage relationships need to be well-developed enough for sufficient "common ground" and trust to be built – this takes time. For example:

> *"Good networks produce solid work…forming relationships takes time." (PSVC31)*

> *"It's longevity…two things I think create the environment. One is the conversation is not pitched on today's funding agreement. It's pitched in a long term relationship around common interests on an issue. So once you abstract the funding element you actually create a more conducive environment for people to come at these issues in a very long term way." (PSFC124)*

Policy officials expressing this view noted how effective engagement and collaboration shaped the relevance of research questions and the feasibility of the research processes that they had participated in. A number noted how collaborative processes can create greater joint ownership of products. Many also highlighted how strong relationships can mean that research outcomes are much more readily accepted in the context of joint research processes, as these relationships support the establishment of mutual trust and respect between research partners.

> *"Projects that I've been involved in have been generally collaborative. Even if an in-kind support mechanism hasn't been offered up in the contract it has been collaborative in that - you know discussions happen. Is the research on track? Are we getting - is the brief being met? Has the contract spelt out very clearly what we expect to see in terms of a product at the end of it and delivering with a timeframe…Any successful research project whether it's instigated in academia for government or on a contract basis by government from academia has to have that level of collaboration and the meeting of the minds in the middle of it. Otherwise it is money wasted." (PSQW24)*

Capacity-building

An insufficient capacity to use research amongst policy officials is a frequent explanation for the underutilisation of research in policymaking (Howlett, 2009; Sá & Hamlin, 2015). This thesis has already canvassed how linkages enhance policy official capacity to use research, by helping them to understand and appreciate research. It has also highlighted how linkages help to identify, access and apply research to policy issues of interest. Further, both policy officials and academics report that the knowledge and skills drawn on to access and appreciate research – as acquired within the context of linkages - mean that policy officials' are increasingly able to undertake these tasks independently, beyond a specific research interaction.

Analysis of the qualitative data suggested strong themes concerning how linkages can support more positive research experiences, which enhance how research is valued and used, and in turn ultimately create more "mature" linkage relationships. For example, a number of policy officials highlighted how having a good, ongoing working relationship with research producers enabled both parties to develop their capacity to effectively engage with each other and to continue to develop joint research capacities. For example:

"…where academic research is used well it's that the policy agency or agencies recognise the importance of academic research and they develop in consultation with academics a program of research to inform it, which sort of overcomes some of that ad-hoc nature. So that partnering between the policymaker and academic institutions, I think, is critical in that regard." (PSAB82)

"…over time, of course we're able to build on that relationship, and therefore that does enable you…around your short timeframes, to cut some corners. You don't need to brief up and all that background stuff doesn't need to occur. People can jump straight in." (PSQW26)

"Part of that was about influencing their work program and them influencing ours…. So having that kind of forward-thinking. I would say if I was in a major policy area I would be looking at those longer term relationships because academic expertise takes some time to build." (PSAB81)

"Telling them what we might need in three and five years' time…so that when it comes to needing a specific piece of work done, it's more likely the university will have the capability to do it. The turnaround will be quicker, the quality should be higher." (PSAB64)

Numerous policy officials reported how the positive research experiences that lead to desired research outcomes could mean that research use in policymaking would be more highly valued in linkage participants' immediate work areas, and potentially within their organisations. Organisational valuing of the use of research in policymaking was considered important by a number of policy officials for shaping the organisational priorities, practices and resourcing that would best facilitate their engagement with research products and providers. Further, it was considered important in supporting their capacity to "champion" the uptake of relevant research in policymaking activities both organisationally and more broadly. These findings are consistent with those of Sá & Hamlin (2015), whose research highlighted how an organisational leadership that values research use in policymaking is needed to create research-friendly organisational cultures.

These policy officials then further noted a specific pattern of one-off, ad-hoc relationships evolving into more substantial and possibly formalised research partnerships over time. This pattern is consistent with prior empirical research findings presented in chapter two, which found that that advancements in the form and quality of linkages is underpinned by, as well as contributes to, a growth in both the personal and organisational capacities that support research use in policymaking (Easterby-Smith et al, 2008; Huberman, 1990).

Many policy officials noted how relationships with researchers and research organisations over time create the capacity to draw on research to address policy issues when policy "windows" become apparent. Relationships support the development of a "research reservoir", with a history of research products being proactively curated and built upon over time independent of priorities in the policy context. Researchers and policymakers are then well-positioned to use this pool of research when policy opportunities do become apparent, and work together to shape the research to the policy environment at that time. This perspective is illustrated in the policy official comments below:

> *"What's the number three issues?… In one year we will probably tackle one issue. Then you deliver on that and build up, build, build up. There's a point in time when it becomes a really, really productive relationship." (PSVC31)*

> *"So there's a constant relationship, not just at one point in time when you develop a strategy and the research is there, available. It's a process and there needs to be trust and networks developed over time. There needs to be the time required for the policymakers to become intimate with the research knowledge, to understand the deep nuances around different contexts." (PVC31)*

> *"I guess if I'm thinking of a long term policy agenda the evidence may show one thing but, for a whole range of reasons, it's not practical, pragmatic for government policy to adopt that. That doesn't mean it's wrong, it just means now's not the right time. Over an eight year period if you had that relationship you can always come back to things…" (PSVE12)*

> *"…it's good to have recommendations, but if they are not achievable, you know, in a current environment, then they might just sit on a shelf for another five years until there's an environment that's amenable to them. So that close relationship is probably worthwhile." (PSQP29)*

> *"I know for example in the family violence area in Victoria where there's been a long history of trying to develop policy on the basis of informed evidence, not just from researchers but also from the practitioners and key networks developed. I think that's one area in the social policy area that it worked well in Victoria and that was I think the basis of policymakers really wanting to be evidence-informed. But that had a long gestation for that collaboration to develop, so I think unless there's policy attention and policy interest over a period of time by some key institutions and individuals it doesn't happen in any significant extent. (PSPC69)*

Finally, a number of policy officials highlighted how linkages build capacity for research utilisation in less direct ways. For example, linkages create pathways for exchanges of staff between policymaking and research organisations. These exchanges were seen to enable universities to be more attuned to the needs of the public sector in educating the students

whom the public service will seek to employ. This is illustrated in the following policy official's comments:

> *"The links with the universities have paid off in terms of often we get the cream of the crop in terms of graduates. Because their lecturer has been doing some work with us…We can't always hold them, but they're often coming to us." (PSPC77)*

ACADEMIC PERSPECTIVES ON HOW LINKAGES SUPPORT RESEARCH USE IN POLICY CONTEXTS

Chapter four presented the results from a number of academic survey items, which illustrated that academic survey respondents were very much interested in influencing policy audiences with their research findings, and that they actively engaged in a range of linkage activities to support this focus for their work.

The academic survey instrument also incorporated an item which specifically aimed to explore academic perspectives around the benefits of participating in research linkages. Academic survey participants were asked to rate a number of proposed benefits of research collaborations. Responses concerning the benefits of research collaborations are summarised in the table on the following page. Most academics surveyed (77%) reported that research partnerships were beneficial, as they provided opportunities for their research to have impact. Other key benefits (as indicated by the proportion of respondents strongly agreeing/agreeing with the items) included the ability to use otherwise difficult to access data, increased industry contacts, and more realistic and/or pragmatic research outcomes.

Table 14 - Benefits of Research Collaborations - Academic Perspectives[35]

Benefits of Research Collaborations	% agree/strongly agree
Opportunities for research to impact on policy and practice created	77
Ability to use data that is difficult to access otherwise	68
Industry contacts increased	65
More pragmatic/realistic in relation to research outcomes	60
Industry contacts helped develop future research projects	58
Career advancement assisted by partnerships	46
Generation of extra income for work unit enabled	45
Publication in broad range of publication outlets enabled	42
More satisfying than "blue sky" research	31
Opportunities to commercialise research outcomes provided	9

An analysis of academic qualitative data reflected the importance placed on linkages identified in these survey results. Academics highlighted numerous ways that linkages enabled them and their research to have influence in policy contexts. Of these ways, five key themes around linkage functions were identified – creating access to research resources and data; growing research contacts/building networks; building credibility, reputation and trust; supporting research translation; and capacity-building. These are briefly discussed below.

Creating access to research resources and data

Many academics identified how relationships can open doors to research resources and data. For example:

> *"So I always try to form a very close working relationship…I've not found it very effective to go pitching a project….My approach has been to try and meet – to*

[35] *Table 14 is derived from responses to academic social scientist survey item 21, "Benefits of carrying out your research with partners from government, industry or the community sector."*

position myself in an organisation in order to be able to meet their needs – rather than coming with my view about what needed to be done." (ACA29)

"I feel like maybe the reason I've got freedom is that I also work specifically with one partner a lot of the time and we have a very deep understanding and shared value commitment…They don't just look out for an evaluator - I actually shape the project in the first place." (ACA47)

"It's so much more effective to be in continual, though not terribly time consuming, communication. If you serve on their committees…you know how they're thinking, you can help them progressively. This is where you get genuine change with or without needing to do research. You just contribute your understanding to keep the relationship with them. Then when there is a time something needs to be done they might come to you and say can you help work on this…" (ACA9)

Relationships are particularly important where research work might involve the need to access data and other forms of information involving vulnerable and marginalised populations. Linkages in this instance target funding bodies, policy decision-makers and a range of community stakeholders, and focus on building trust and credibility, as well as stakeholder engagement in research processes. As the following academics noted:

"Most of the work we do is with quite vulnerable populations or marginalised populations such as sex workers or injecting drug users. So it's dependant on good relationships both with ministries of health mainly, in countries, but also relationships with the donors [funding providers]…and building the trust of the local communities." (ACA82)

"I think the upside of the government work….is that the ethics and the access questions in terms of getting hold of human subjects and into institutions usually are smoothed over by the government agency that's supporting you. The downside to the ARC on the other hand is that you can get all the money and everything, all the design set up and then find that you can't get access to do that, so that's a real problem." (ACA92)

Several academics highlighted how involvement in government advisory panels or committees can also be a key way of accessing data that might otherwise be inaccessible to academics.

Growing research contacts/building networks

The academics interviewed frequently noted how specific research relationships could lead to new research opportunities – or opportunities to disseminate work more widely – by facilitating access to other forums. For example, numerous academics reported that research consultancies can be the pathway into other types of research relationships, such

as involvement in ministerial taskforces, participation in larger government projects, or membership of ongoing forums/networks around specific policy issues.

> *"I really firmly am committed to building those slow and steady relationships. Where you basically get judged on your outcomes so that you do a piece of work, it's considered well by the person who contracted you to do it and then they come and want you just to do another piece." (ACA46)*

> *"He was brought in as a consultant first and then he actually ended up on the [name of project removed] Project, working out of the Prime Minister's office." (ACA33)*

This meant that numerous academics reported pursuing specific consultancy projects even when they did not think the piece of research itself was of particular interest or worth to them:

> *"…in the initial meeting it was reasonably clear that they wanted us to do some fairly straight up and down survey that was really just straight consulting. It was of less interest to us but it was a way to build the relationship. So we did it and that led to a whole bunch of other things, including fully funded PhD scholarships and post-doctoral research fellowships and programs of work…We might then sort of take advantage of the relationship to suggest to them that there are things that, you know, that we would be really interested in but that are also going to be beneficial for them." (ACA41)*

> *"…I was on the writing group for that and then wrote a dissemination paper on the process on how those were developed. They continually bring me back to give input into other initiatives that they have." (ACA42)*

Less specific "networking" activities – such as mingling at workshops and events, participating in conferences, and attending departmental seminars and meetings were also highlighted as important linkage activities for growing research contacts and opportunities:

> *"I think a lot of academics don't get it. They think if they're not working this specific project then it's not worth investing their time. Social scientists used to look at me with envy, how do you get all these grants? I go out and talk to people. When they invite me I go to everything from the workshops to the drinks parties… You get out and network. That's the facilitating factor and a lot of it is word of mouth and people connect others up." (ACA9)*

Building credibility/reputation/trust

Relationships help academics to establish and build the professional profile, reputation and credibility amongst policy official stakeholders they consider necessary to support productive, ongoing research relationships.

> *"…there's existing relationships already, so some of the people who are involved on either side of that already know each other very well. That's going to help us a lot. We're not starting cold…For them, they're trying a new model of engaging and it's risky because it's collaborative, it's fairly organic, we've got some very broad guidelines and they want to see if it will work. They can do that with some people that they already know." (ACA18)*

Many academics highlighted how the key benefits for involvement in linkage relationships are more often about how relationships with policy officials are deepened, and how trust and credibility are built, rather than about relationships building ever-larger networks. Policy official and academic research partners learn the most effective ways for working together, learn more about each other's priorities and constraints, and develop confidence in each other's commitment and capacity to achieve mutually satisfying outcomes from their relationships. This is ultimately what best supports the relevance of research products, and facilitates their effective translation and application. Some of these themes are highlighted in the following academics' comments

> *"It's a kind of reputational profiling matter. If – especially in commissioned and applied work – if you complete work which parties – whether they're government or industry or community organisations – feel get them where they want to go, the word gets around." (ACA16)*

> *"I think one of the lessons to me was having a profile - a thing I haven't bothered with in this country as much. I've been concentrating much more on networking with people who do the same kind of stuff as me and how can we push this forward - that can be costly in terms of one's ability to have an impact on policy." (ACA12)*

There was a sense among some academics that certain types of linkages may be more beneficial for growing mutual trust and the quality of a relationship, than for creating links in the first place. For example, one academic noted how the nature of mutual involvement required to effectively undertake ARC linkage projects was more aligned with enhancing relationships than establishing them:

> *"The purpose of a Linkage [funded project] may be to open collegial relations but to me they're much more effective in improving and deepening collegial relations…" (ACA11)*

Supporting research translation

Many academics highlighted how linkage activities enhance the influence of research in policymaking processes by supporting research translation. Meetings and other kinds of

face-to-face communication enable findings to be discussed and mutually understood, and for research processes to be refined such that findings have relevance to the policy issues they seek to inform. These themes are evident in the following academic's comments:

> *"I think you need to try to organise meetings with them face-to-face. You don't get a sense of what they want or what is worthwhile and you don't get their time. I mean if you give them written documents, people don't read them, don't keep them. You need to have that space where people can actually come and listen or talk throughout the project but also at the end of the project." (ACA24)*

In discussing a number of cases where research had influenced policymaking processes, several academics highlighted that linkages, not publications, had been the decisive factor in shaping research use. This is illustrated in the following academic's comments:

> *"…the academics' publications were important, but it was the next step – their interaction, their engagement at the right time - with convincing arguments" (ACA33)*

This academic perspective was supported by many policy officials, and is well-expressed in the following policy official's comment:

> *"…we want those insights that they've got along the way of doing their research as much as we want their academic paper that's been peer reviewed and the like." (PSPC51)*

This reflects conclusions of recent empirical studies by Talbot & Talbot (2014) and Haynes et al (2011a) that found that policymakers are more likely to rely on a researcher's overall expertise, as opposed to individual research reports, to inform their work. This expertise is typically sought and imparted via linkages between academics and policy officials.

Several academics described how the commissioning process often does not address research translation. These academics noted how they build relationships by taking these tasks on even when they lie outside of funding parameters – and the relationships in themselves help them to know how best to go about this. For example:

> *"One of the things that was very clear that [departmental name removed] wants us to do…is a whole set of policy research briefings. So they want us…to essentially convene a sort of policy round table with a bunch of people from the department and from other agencies to talk through the research and discuss the implications of that policy. None of that is in the contract, but we'll do it… From our perspective it's important to do those things because, as I said, the stronger the relationship is,*

the more likely we are to be able to continue to work with them but also to suggest things that we might like to do, and that they would pick up." (ACA41)

Several academics highlighted how effective knowledge exchange/research translation actually requires engagement, and engagement necessitates relationships. As one academic expressed this:

"…but I think the evidence is pretty clear that you need - either the researchers need to take on this beyond dissemination to engagement function. If they don't, some form of knowledge broker, some think tank, some other individual body needs to be there to do that. Not just translation, that knowledge exchange - that's how I see it…" (ACA33)

Capacity-building

Many academics remarked on how having a good, ongoing working relationship with policy officials enables both parties to develop their capacity to effectively engage with each other. Academics noted specifically how linkages helped them to become more policy aware and realistic in relation to the impact of their research on policy processes. Policy officials were considered to develop a better understanding of research products and research processes, which in turn better supported effective co-production of policy-relevant research products. Academics also noted how policy officials engaging in linkages could develop important capacities around applying research to policy issues, which then created opportunities for enhancing the impact of academic research efforts.

A number of academics highlighted the lack of internal research capacity within policymaking organisations. They observed that this had detrimental impacts on all aspects of a research process, limiting its usefulness in addressing policy issues of concern. For example, academics suggested that a lack of research capacity amongst policymaking organisations can negatively impact what research questions are asked and how, the research methods adopted, the way in which a research process is undertaken and how research products are applied – all of which can undermine the very value of undertaking research to inform a policy issue at all. Linkages were considered an important way for addressing these capacity gaps, as well as a vehicle for building future research capacity amongst policy partners.

Finally, numerous academics reported that linkages created opportunities for them to become known by others, especially policy officials, as producers of high quality, policy-

relevant research. This creates further linkage opportunities, which support the development of academic policy knowledge and skills, research capacities in policy partners, and ultimately greater capacity for research to influence policy processes. For example:

> *"The influence on policymakers at a lower level in that case is actually building capacity of bureaucrats to analyse the data…it deliberately tried to enhance their capacity to understand the reliability of data and analyse those sort of things." (ACA40)*

Building a capacity to "bridge" – knowledge brokering

Academics frequently highlighted the value of having both academic and other policy experience for effectively engaging in policy-relevant research processes. Several academics reported how having experiences in both research and policy worlds resulted in strong relationships being formed in both research and policy environments. Further, academics in policy contexts reported becoming more policy knowledgeable and policy officials in academia were considered to become more research knowledgeable. Experiences in both "worlds" were highlighted for creating "common ground" between research and policy partners. Ultimately this was deemed to build specific capacities amongst researchers and/or policy officials to "bridge" both contexts, and thus better equipped them to support research use in policymaking. For example:

> *"Of course it's easiest to work with academics who've spent time in government. If you haven't you've met not many but some have. I don't mean as a public service but as academic advisors to government, or some have worked in Ministers offices so they get that stuff…" (ACA31)*

> *"…it influences your view of the world or the issues that you're confronting and you always get more nuance to understanding, I think, if you can bring that range of experiences or at least have enough experience to be aware of the questions you'd need to ask or kind of tune into what you might be missing out on." (ACA73)*

> *"…he knew how to work with academics because he'd just been one himself until a little while before that. So, you know, I'm sure he didn't take too many really big risks…" (ACA21)*

> *"…if they knew we're trying much more to get interface with the public service. Both through direct linkages - having people coming here, having our people go there, setting up centres. So that's I think a good policy. Because you know, just by talking to someone, you can find out what they're interested in…" (ACA27)*

"I always saw myself as someone working within academia but as a bridge between those kinds of communities…" (ACA24)

A number of academics suggested that proactive, formalised strategies for fostering such exchanges might well be a way of enhancing capacity both within universities and government to engage effectively in research processes to inform policymaking efforts:

"The opportunity for them to come and spend some time with us and appreciate how we work and how we could work together effectively would be great…that sort of exchange helps people to probably become much better research collaborators. There's no doubt about it…" (ACA18)

Some academics expressed a perspective that linkages can help to bridge "silos" between disciplinary areas that can inform work on a policy issue – within universities/government and between universities and government. For example:

"There is now a movement across the - between the silos, sometimes, and the ones I can think about are people who have moved into various analytical or even research-designated positions within government; know they've got a limited capacity to deliver on a range of analytic issues - and seek therefore to leverage their presence through universities, to get the resources to do the work as well as the skills to do the work…" (ACA21)

"But in interdisciplinary research where you're crossing this kind of social behavioural science, health, bioscience, you span across those, even within faculty or even - particularly across faculty - the systems just aren't supported. They really work actively, not necessarily intentionally, but actively against that. So development of these collaborations really require a lot more personal contact, a lot more personal [buy-in] - because it has to be at that level." (ACA44)

Linkage relationships were considered particularly significant in underpinning the capacity of research centres/institutes that rely on ongoing contract work to attract and successfully produce this work, and therefore highly important for academics in these environments. Longer term linkage relationships with policy officials, in particular, could support academics in these organisations to be more strategic in planning a program of research work that would be policy-relevant, and thus attract much-needed funding. Relationships with policy officials were also considered important in building a profile for the work of these centres/institutes – with this profile being essential to their capacity to attract future research opportunities, as well as skilled staff to undertake policy-relevant research work.

> *"The Institute depends on having ongoing relationships with our external partners or clients, and they're typically government... We want to look to build long-term relationships, where we can have expectations that we will do things in partnership with them -where over time, we can progressively suggest to them things that we might be interested in doing, that they might also be interested in supporting." (ACA41)*

Having briefly outlined both the quantitative and qualitative data themes that indicate how academics and policy officials see linkages support research utilisation in policymaking, the thesis now turns to a discussion of the results of multiple linear regression models that explored the relationship between linkages and research impact, as captured by academic and policy official surveys.

LINKAGES ARE A PREDICTOR OF RESEARCH IMPACT – MULTIPLE LINEAR REGRESSION ANALYSES TO EXPLORE THE RELATIONSHIP BETWEEN LINKAGES AND RESEARCH IMPACT

Chapter 2 highlighted how a strong association between linkages and research uptake has been reported by numerous studies in the research utilisation literature. A small number of these studies involved similar survey instruments to the ones drawn upon for this research project, and demonstrated this association via the application of regression analysis models to the data (Landry et al, 2001a & 2001b; Cherney and McGee, 2011). However, to date most research findings suggesting an association between linkages and research use have done so only on the basis of respondent reports of a connection between research relationships and research use (Ouimet, 2010). Multiple linear regression models were thus designed and applied to the survey data for this project, in order to explore more explicitly the nature of any association between participation in a range of linkage activities and reported research uptake.

Dependent variable for regression models

Both the policy official and academic regression models used the same dependent variable for measuring research impact.

In order to explore the relationship between linkages and the uptake of academic research, a dependent variable that would measure research utilisation (as reported by survey participants) was created. Currently, as noted previously in this thesis, there is no universally accepted or widely adopted model for measuring the utilisation of research

(Lester, 1993; Oh & Rich, 1996; Ouimet et al, 2010; Smith et al, 2011). The literature on the utilisation of academic research has, however, consistently suggested three broad types of use: instrumental, conceptual, and symbolic. Instrumental utilisation involves applying research results in specific, direct and concrete ways – research findings are directly drawn upon to solve clearly predefined problems, to make specific decisions or to develop interventions. Conceptual utilisation involves using research results to shape thinking. The research informs and enlightens the decision-maker but not necessarily his or her actions. Conceptual utilisation can be seen as indirectly influencing actions. Symbolic utilisation involves using research results as a persuasive or political tool to legitimise and/or maintain predetermined positions or practices (Amara, Ouimet & Landry, 2004; Beyer 1997; Estabrooks 1999; Weiss, 1979). As such it was considered that all three types of use should be considered to adequately capture research utilisation for this research project.

A scale around research utilisation - a modified[36] version of the Knott & Wildavsky (1980) research use (RU) scale – had been built into both the academic and policy official survey instruments. The scale operationalises research use as a cumulative process that progresses through a number of stages from transmission, through cognition to application. These stages also capture the instrumental, conceptual and symbolic types of research use commonly identified in the literature. The scale was adopted by the project because it is considered to be reliable (Cherney & McGee 2011; Landry et al, 2001a; Landry et al, 2003; Lester & Wilds, 1990; Lester, 1993), and thus has been drawn upon as a measure of research use across several prior studies with both policy official and academics research subjects. This means that results from the analysis of data collected for this project can then potentially be compared with others that have adopted the scale (Cherney et al, 2012).

The dependent variable for both of the regression models reported on in this paper is, thus, made up of five items - two instrumental impact items (namely research that influenced decisions on the allocation of resources to policies and programs, and research that has been used to shape and inform the design and implementation of policies and programs); a

[36] The research utilisation scale built into the survey instrument drew on the six stages of research uptake that form the Knott & Wildavsky (1980) scale adopted in prior studies – such as Landry (2001a) – however the wording for these was modified.

conceptual impact item that taps whether research has been used to alter or transform how policymakers and practitioners think about and understand issues or choices; and two symbolic impact items, tapping whether academic research was used to put new issues on the public and political agenda and whether it was used to justify or legitimise choices already made by policymakers and practitioners.

Separate multiple regression models for the academic and policy official survey data sets were then created, drawing on relevant linkage-related survey items to create independent variables for each model. Details of the independent variables, and findings for each of the models, are outlined separately below – starting with the policy official model.

Policy official multiple linear regression analysis

Independent variables for the policy official regression model were drawn from survey items focusing on the importance they accorded to information from a range of external sources, the importance of research evidence to policymaking, engagement in a range of linkage activities, participation in research partnerships and the use of intermediary and link staff. These linkage-related items are all suggested to be associated with the uptake of academic research by policymakers and practitioners in the research utilisation literature. Control variables were included about policymaker characteristics such as education level and employment history, since two communities literature would suggest that policymakers who have a shared background and experience with academics might overcome barriers to working with academics more effectively and report greater research impacts as a consequence (Caplan, 1979; Wingens, 1990). The control variables around position were included to explore the common conception that seniority or a specialist position within a policymaking organisation may be advantageous in itself for achieving greater uptake of research.

To account for the high number of respondents who indicated that one or more of the independent variable items were not applicable, these respondents were excluded from the regression model presented below, reducing the sample from 2,084 to 1,741 policy personnel. The results of a regression analysis of the excluded cases indicated it was unlikely that any bias related to the omission of excluded cases would change the observed

patterns of associations or the conclusions reached from the regression model presented below.

A number of indices were created and included in our model as independent variables. The items used in each index were determined by factor analyses, with each index comprising a 1-factor solution. Detailed descriptions of index compositions are presented in appendix seven.

Reliability measures were run for the created dependent and independent variables, with acceptable levels of Cronbach's alpha coefficient levels being attained for all variables. These are outlined in appendix eight. Descriptive statistics for dependent and independent variables are presented in appendix nine. The multiple linear regression model results are presented in the table below.

Table 15 – Impact of Key Factors on Reported Research Utilisation: Policy Official Model

	Research Utilisation β	**SE β**
Importance of information from state/local government	0.01	(0.02)
Importance of information from federal gov, international org, uni researchers	0.18***	(0.03)
Importance of information from interest grps, think tanks, professional associations, professional associations, private consultants	0.09**	(0.03)
University research partners	0.00	(0.00)
Government research partners	-0.01**	(0.00)
Private sector research partners	0.01	(0.01)
Linkage mechanisms	0.17***	(0.03)
Policymaking based on sound evidence	0.33***	(0.02)
Regularly consult knowledge broker	0.13*	(0.05)
Irregularly consult knowledge broker	0.06	(0.04)
Regularly interact with link staff	0.14*	(0.07)
Irregularly interact with link staff	0.08	(0.04)
Contract academics to do research	0.13***	(0.03)

Advanced Diploma/Diploma	0.05	(0.10)
Bachelor degree	0.05	(0.08)
Graduate Diploma/Graduate Certificate	0.12	(0.08)
Postgraduate Degree	0.12	(0.08)
Senior Executive	0.00	(0.08)
Manager	0.04	(0.06)
Data Analyst	0.07	(0.06)
Previously been employed at a University	-0.01	(0.04)
Constant	0.09	(0.15)
Observations	1741	
Adjusted R^2	0.311	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results show that eight linkage-related variables significantly predicted research impact, with the linkage variables predicting almost one third of the dependent variable[37]. The eight variables were: importance of information from federal government, international organisations and university researchers; importance of information from think tanks and interest groups; government research partners (with respondents less likely to report research impacts where they have more government research partners); linkage mechanisms; policymaking based on sound evidence; regular consultation of knowledge brokers; regular interaction with link staff; and contracting academics to do research.

None of the control variables concerning qualifications, work experience or position within the organisation proved to be a significant predictor of research impact in themselves.

Of all of the independent variables in the model, "policymaking based on sound evidence" was the strongest predictor of research utilisation (β 0.33, $p<0.001$). This variable captures the degree to which survey respondents consider that their organisational environments value research evidence in the policymaking process. Analysis of qualitative data, presented in previous chapters of this thesis as well as in the previous section of this chapter,

[37] The adjusted R^2 for the policy official model was 0.31.

revealed that policy officials consider that valuing policy-relevant research is both a key facilitator for effective linkages and for supporting research impact in policymaking. Policy officials reported that organisations that value research evidence in policymaking are more likely to have measures in place to support access to research products, to encourage the creation of and participation in a range of research linkage relationships, and to have a focus on the development of capacities that support effective involvement in research relationships. Policy official perspectives on the importance of an organisational culture that values research are consistent with the body of literature around absorptive capacity, which suggests that an organisation's ability to evaluate and use outside knowledge is a function both of individual staff members' skills, experiences and abilities and organisational level characteristics - such as the degree to which new external knowledge is valued within an agency, the existence of structures of communication with the external environment and the character and distribution of expertise across the organisation – as these factors shape how new knowledge is assimilated and exploited (Harvey, Skelcher, Spencer, Jas & Walshe, 2010; Zahara & George, 2002; Cohen and Levinthal; 1990).

Another interesting result of the multiple linear regression model was that the independent variable "university research partners" was not a significant predictor of reported research utilisation. On the surface this would appear counter intuitive, particularly as contracting academics was significantly associated with research utilisation. However, further consideration of this result in the context of qualitative data analysis suggests a plausible explanation. The index measure is composed of two survey items that measure the numbers of external university research partners. An examination of mean and standard deviation descriptive data (appendix nine) reveals that the average number of university partners reported by respondents was consistently low across the survey sample – and this would be the case for those who reported research utilisation or not. The analysis of qualitative data presented previously in this thesis suggests that, where a research relationship has worked well, the same academic partners may be used time and again. This would tend to suggest that the model measure was not significant as it focused on numbers of partners, when the quality of relationships is more likely to be prioritised by policy officials. The effort and time that goes into building and sustaining higher quality

relationships may in fact limit the number of university research partners policy officials engage with.

Academic multiple linear regression analysis

Independent variables for the academic regression model were drawn from survey items focusing on extent to which academics have partnered with government departments/agencies, involvement in research related linkages, the targeting of academic research efforts, experience and practices around research dissemination, and the perceived importance of a range of research products. These items are all suggested to be associated with the uptake of academic research by policymakers and practitioners in the research utilisation literature – with interactive forms of dissemination highlighted as the most significant in shaping impact. Control variables were included around academic characteristics such as academic employment history, employment level attained (an indicator of academic experience), and whether the academic is engaged in a research-only role or not. Again, two communities literature suggests that academics who have a shared background and experience with policy officials might overcome barriers to working with them more effectively and report greater research impacts as a consequence (Caplan, 1979; Wingens, 1990). The control variables around position were included to explore the common conception that seniority or a specialist research role may be advantageous of itself in achieving greater uptake of research.

A number of indices were created and included in the model as independent variables. The items used in each index were determined by factor analyses, with each index comprising a 1-factor solution. Detailed descriptions of index compositions are presented in appendix 10.

Reliability measures were run for the created dependent and independent variables, with acceptable levels of Cronbach's alpha coefficient levels being attained for all variables. These are outlined in appendix 11. Descriptive statistics for dependent and independent variables are presented in appendix 12.

Where data was found to be missing on four or more variables across the 14 variables included in the model, these cases were excluded. Academic social scientist responses were also excluded from the regression analysis where data was found to be missing from

one or more of the dependent variable items, reducing the sample for the regression model presented below from 669 to 497 academics. The results of a regression analysis of the excluded cases indicated it was unlikely that any bias related to the omission of excluded cases would change the observed patterns of associations or the conclusions reached in the regression model presented below.

Results for the academic multiple linear regression model are presented in the table below.

Table 16 – Impact of Key Factors on Reported Research Utilisation: Academic Model

	Research Utilisation β	**SE β**
Government Partners	0.01	(0.01)
Linkages	0.10*	(0.05)
Targeting of research	0.02	(0.06)
Experience disseminating research to non-academic end-users	0.22***	(0.05)
My workplace has experience disseminating research to non-academic end-users	-0.04	(0.03)
Dissemination	0.20***	(0.04)
Informal contacts	0.04	(0.05)
Seminars and presentations	-0.05	(0.05)
Sending reports	0.09	(0.05)
Publications in refereed journals	-0.01	(0.04)
Media coverage	0.12**	(0.04)
Academic level D & E	0.23***	(0.07)
Previous employment in government agency or department	0.43	(0.26)
Research only position	0.10	(0.06)
Government Partners	0.04	(0.06)
Constant	0.65*	(0.29)
Observations	497	
Adjusted R^2	0.362	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results for the academic model show that the model is a good predictor of research utilisation (with the adjusted R^2 being 0.36), and that four linkage-related variables significantly predict research impact. The four variables are involvement in research-related linkages within multi-disciplinary teams or with policymakers and practitioners from government and non-government institutions; reporting experience of disseminating research to non-academic end-users; considering organising meetings and dissemination activities that target end-users an important part of research activities; and viewing use of the media as an important method for disseminating research outcomes.

Of the control variables, only one significantly predicted research impact. This variable related to the academic level of the survey respondent. Academic at levels D and E, thus those academics with greater seniority and experience, were more likely to report that their research had impact.

An association between involvement in research-related linkages and research uptake is hardly surprising given the numerous benefits for research partnerships reported by the academics who were surveyed. These benefits, presented previously in the chapter in table 13, included developing mutual clear understandings and expectations for research outcomes, better understanding the policy process and the role of research in that, being better able to tailor research dissemination and translation efforts and having greater access to key policy official stakeholders.

Two of the strongest associations with research impact found by the model were with experience disseminating to non-academic end-users, and reported participation in a range of formal linkage dissemination activities with policy official research partners across the lifespan of a research project (such as participating in research-related meetings and preparing and implementing structured dissemination activities for end users). Again, this reflects the findings presented earlier in this chapter around how active joint-working can foster engagement with the research process, help to build trust, facilitate the delivery of more targeted research products and create joint ownership of these products. Actively engaging in and having experience with formal joint-working processes to support dissemination of research outcomes over the course of a research project would reasonably be expected to enhance the impact of research.

The strength of the association between the control variable concerning the seniority of academics and reported research impact perhaps reflects the fact that more senior academics would often have more experience in participating and leading joint research efforts, would have had more time to develop a track record of successful policy-related research projects, and would be better positioned in terms of having an existing network of relationships and research partners.

The strong association found between use of the media for disseminating research outcomes and reporting research impact is perhaps the most interesting finding of the regression model. The media index used in the regression model is based on 3 items - participation in radio and/or television programs; publication of articles in non-academic outlets; and publication in electronic media (e.g. blogs and other social media).

Themes concerning the significance of academics' views around using the media for disseminating research outcomes for predicting research impact are not readily apparent from analysis of the quantitative or qualitative data to explore the types of linkages, perceived benefits of linkages or facilitators or barriers to linkages, outlined previously in this thesis. In order to understand this finding in the regression model, therefore, a specific analysis of academics' interview perspectives surrounding use of the media was undertaken. As the use of media for dissemination was an item built into the interview protocol for academics, a text search strategy using terms such as "media" could be employed for identifying this material across the interview sample. Analysis revealed a number of key themes.

The analysis of academics' responses highlighted that there were a variety of media sources and strategies that might be employed to disseminate research findings – these involved both publication/discussion of research findings in traditional media sources such as newspapers and on radio, but also via newer forms of electronic or social media, such as blogs. Media sources could either be university/academic institution operated or externally operated, with academics then describing various ways in which they were approached or able to access these media sources to disseminate their work.

Many academics reported some involvement in contributing to media releases about a research project. A small number expressed a much greater reliance on the media as a

dissemination tool, describing well-planned dissemination strategies targeting a variety of media sources. These academics had a significant track record of producing and disseminating research via media outlets, with their use of the media being viewed as a deliberate and considered tactic for effectively mobilising their research. It was considered a complementary component to the wide range of other dissemination methods they also employed. They frequently reported having developed a network of contacts, or a professional reputation as an expert, whereby media sources would seek their input into a media dialogue about a particular issue. For example:

> *"Academics have to develop a program of research that is sort of integrated and can allow the building of quite a substantial body of knowledge and expertise that can then be slotted by policy, by ministers, by the media, as a go-to place for this information. Once you're a repository of knowledge then you have to frame the kind of work that we do as one of engagement with the various stakeholders. That engagement is much broader than journal editors, academic colleagues or graduate students." ACA88*

In some instances these academics reported working in a setting (for example a research institute) where this approach to use of the media had been institutionalised. In some of these instances, the interview material suggested that the academic may have been recruited to their position within the organisation for their experience and track record of success with this kind of dissemination, as much as being supported in their media efforts by organisational practices, culture and resources.

Academics reflected various degrees of comfort in using the media as a tool for dissemination. A number of academics were very positive about the use of media sources for dissemination. These academics typically suggested that they used media sources as one of a number of dissemination strategies.

Several benefits for using the media to achieve greater research impact were highlighted. A key benefit was considered that research material became more readily available in a digestible form for public servants engaged in policymaking to access electronically.

> *"So I think that…getting that picked up in other electronic media is a great way of getting stuff out. I think the reason it's a great way of getting stuff out is because public servants expect to get information that way. They expect to be able to Google it and they don't expect to pay…" ACA96*

Research findings would also make their way into the public and political spheres as part of a social discourse. This could raise the profile of an academic researcher or research group in order to facilitate relationship-building opportunities with key policymakers. It might also be employed to influence the policymaking process in a broader way than by targeting public servants alone, by seeking to shape a more receptive policy environment for the research findings. This is illustrated in the academic comments below:

> *"So I think having a media profile helps us open doors in terms of potential policy impact." ACA51*

> *"We do some fairly edgy public policy research, and we end up having sometimes quite a detailed media plan where we'll do up to 20 media across TV, print and radio over the space of a couple of days, and we'll have someone quite important launch the report and that will create a frisson. It's really about trying to reach stakeholders and policy decision-makers in some of these controversial areas…where you want to show that it will make a difference and that the people are interested and that its controversial." ACA97*

> *"I think it's important to put it out there into the public generally, in many instances – not just focus only on policymakers. Politicians pay attention when they see something in the media, and if it's in the media they'll then require their government departments and others to pay attention to it, and seek out information so they can respond to it. So, it's a matter of using targeted strategies for particular topics and for particular circumstances." ACA84*

It is important to note that not all academics were comfortable using the media to disseminate research outcomes. Of these academics, some expressed reservations stemming from a lack of skills, experience or contacts to target media sources effectively. Many highlighted concerns about maintaining adequate control over the quality and content of media messages conveying their research outcomes – or reluctance for their research messages to be politicized by the media. For example:

> *"I don't use blogs…I've tried using blogs, but I just found it too much noise and the quality control is pathetic." ACA27*

> *"The media, in my view, is something you can't avoid and you have to talk with every now and then, but not necessarily the main game. Because, especially under the current political regime within the Australian media and the relationship with Murdoch with certain issues in our area, it's very difficult…to get a fair hearing within the media." ACA40*

> *"I would say there are some real traps here for the uninitiated and the unaware player that have to do with what actually are the secondary sequelae of becoming*

more publicly known as sort of a point of contact. One is that there can be an increased proportion of demands on your time to deal with. A lot of academics run a mile because they just see it as an intrusion." ACA88

While none of this analysis clearly points to why the value placed on using the media to disseminate research is such a strong predictor of reported research impact, some contributing factors may be suggested. Firstly, the academics who were most positive about the value of the media for disseminating research products in the interviews were also those most likely to employ a diverse range of approaches as part of a well-developed and varied overall dissemination strategy – thus, they were perhaps some of the most active "champions" of research use in policymaking of the group of academics studied. These academics were also more likely to have had a track record around working effectively with the media – with some suggesting that they had recognised expertise around a particular issue or policy area. This kind of track record and recognised expertise often comes with experience and thus seniority as an academic. Seniority of academic position itself was a predictor of reported research impact in the regression model. Finally, academics who reported more extensive media targeting in disseminating their work were also those more likely to suggest targeting broader groups of stakeholders and politicians via these approaches - and to highlight the role that this might play in influencing the policy process. A broader understanding of the policy process might also mean a broader understanding of how their research might impact policymaking, and consequently this group of academics may actually recognise and report more research impact than others.

CONCLUSION

While previous chapters in this thesis presented findings about the wide range of linkage types academics and policy officials engage in, the many factors that shape which linkages are preferred and possible, and barriers and facilitators to initiating linkage relationships in the first place, this chapter has focused on exploring how policy officials and academics believe linkages support research use.

The chapter commenced by outlining data focusing on a number of identified themes that capture reported functions for linkage relationships in enhancing EBP. Academics and policymakers highlighted how linkages met reciprocal needs for effectively engaging in EBP activities. For policy officials, linkages create access to research and research expertise

and for academics, linkages grow policy stakeholder contacts, build a profile around their expertise, and thus underpin research opportunities. Linkages were considered to be extremely important in underpinning effective processes for research translation and application by both academics and policy officials. For academics, participation in linkages meant that they were better able to "craft" research processes and outcomes around policy imperatives. For policy officials, linkages better enabled them to understand and apply research to specific policy issues or contexts. Academics and policy officials reported many ways in which linkages created or enhanced the specific academic, policy official and joint-working capacities required to effectively produce and apply policy-relevant research to policymaking processes. These capacities involved both development of specific knowledge and skills, and less tangible capacities such as building a knowledge brokering capacity for academics, or creating a "research reservoir" for policy officials. Finally both policy officials and academics highlighted the value of linkages for creating the mutual trust, respect and "common ground" that meant they had the confidence to capitalise on the additional capacities their relationships provided for them. Linkage relationships, as such, would appear to underpin a process whereby an external source of knowledge takes on a similar status to more trusted internal sources of knowledge for policy officials – making the use of academic research more likely in policymaking processes.

The chapter then presented the results of multiple linear regression analyses undertaken on academic and policy official survey data to establish the nature and extent of the relationship between participation in the range of linkage activities identified and reported research impacts in these data sets. Discussion of the results of these regression analyses were positioned in this final chapter, in order to place them in the context of all of the broader analysis undertaken for this research project and to interpret results. The findings of these models revealed a strong association, for both academics and policy officials, between participation in linkages and linkage activities and reported research impact. This association between linkages and research uptake reflects the findings of similar prior studies undertaken internationally (for example, Landry et al, 2001a & 2001b; Cherney and McGee, 2011).

In the next chapter, the final chapter for this thesis, I will bring together all of the key findings for my research, and considers their implications. In doing so, the themes around linkage

functions discussed in this chapter, in particular, will be drawn upon to propose a more integrated model for understanding the influence of linkages in supporting research utilisation.

CHAPTER 7 – DISCUSSION AND CONCLUSIONS

This thesis employed a mixed methodology, drawing on quantitative and qualitative data sources, to explore how linkage relationships between policy officials and academic researchers support the use of research evidence in policymaking processes. A number of specific research questions were designed to structure this enquiry. These are as follows:

1. What types of linkages are predominant between academics and policymakers?
2. What are the key barriers and facilitators to developing and sustaining these linkages from an academic perspective compared to a social policymaker perspective?
3. How do these relationships relate to a capacity for research utilisation in policymaking contexts?
4. How can linkages be enhanced to support the policy uptake of social research evidence?

Chapter one of the thesis introduced this focus and outlined specific research questions for examination. It also provided a broad context for my research, by providing a brief overview of the challenges associated with EBP, and outlined why linkages have been considered important in supporting efforts to enhance the uptake of research in policymaking processes.

In providing this broad context, the chapter highlighted how policymaking is a complex process shaped by many influences. The research utilisation literature highlights how research evidence can and does play an important part in policy decision-making, but is only one of many considerations used to inform the process. Further, the policymaking process can take on take on quite a different character over time, across governments, and both across and within sectors.

Such complexity was well-recognised by the academics and policy official respondents who contributed the data that underpins this thesis. Both academics and policy officials highlighted a number of characteristics of current policy processes that create challenges for EBP, with some of the most significant perhaps being the pace of policy decision-making processes and the role of the media, social media and public opinion in decision-making. EBP was not conceptualised as a simple rational process, but rather one by which research makes its way into policy "consciousness" via a variety of pathways, and is drawn upon in quite pragmatic ways to shape policy priorities and outcomes. This perspective is illustrated by the following comments:

"…the way it much more works is more of an enlightenment model. So you do research and other people do research on an issue, which raises awareness of that issue. It feeds into a political policy process as one input along with many others, non-research based…" ACA29

"I think evidence based policy tends to occur not in isolation…it will occur when there is other alignments of political interest or other alignments in terms of policy trajectory that might be in accord with a set of evidence." PSVC35

"So there was another interesting sort of exercise where the politics intervene, but also the pragmatic sort of political positioning of a department and a government of the day, whoever it was, having to manage the risk associated with whatever outcomes might come out of this research." PSVC35

"There are the sheer practical considerations of it, and I think that's - everyone has always understood that the politics trumps the evidence if you like, in certain circumstances, and that's just, I think, a price that people pay in the public sector. The idea that somehow evidence speaks truth to power, has got to be one of the silliest things I've ever heard. Really, we know it's not true, and certainly it shouldn't be because it can't always be the case that the evidence is the best synthesis of what we know about the world. All sorts of shortfalls in the way in which evidence is collected and reported." PSNT75

A review of the literature was undertaken in chapter two. The review focused on presenting an overview of broad models for understanding how policy is made, and outlining a number of more key specific theories in the research utilisation literature, with the models and frameworks all explaining or implying the significance of linkages in supporting research uptake in policymaking. As noted in the chapter, some of the models and theoretical frameworks have been more dominant in shaping understandings around linkages over time. Linkages as a vehicle for overcoming cultural dissonance between research and policy communities was an overriding theme early in the inception of concepts around research utilisation, and continues to be prevalent in current discourse. However, ideas around the social processing of knowledge have been more significant in recent times. Broader understandings of the usefulness and potential influence of linkages are implied in recent theoretical frameworks, but more overt, evidence-based accounts of these have not been cultivated to date.

Chapter two also provided an overview of existing empirical research exploring linkages and EBP. To date empirical efforts to investigate linkages have been limited. The chapter highlighted how a reliance on "factor" type findings in the literature has done little to progress understandings around how the different types of linkages relate to each other, how linkages

shape research influence, or the processes associated with initiating, developing and sustaining effective linkages. These are all evidence gaps that make it difficult to consider how linkages can be enhanced to support the policy uptake of social research evidence. This thesis is an attempt to begin filling some of these knowledge gaps.

Chapter three detailed the mixed methodology underpinning this thesis. It also presented data that provided a picture of the key characteristics of policy officials and academics who contributed data.

Chapter four presented findings about the types of linkages that academics engage in to enhance the influence of their research, and the kinds of linkages policy officials engage in to make use of research, in policymaking processes.

A wide range of linkage arrangements were identified from the data sources. Participation in these was shaped by a host of interacting factors. However, it is clear that the particular character of a sector/policy area, the specific tasks and focus of research producers' or users' organisations, and the culture established by governments all play a significant role in shaping the nature and extent of both informal connections and institutional arrangements supporting linkages between policy officials and academic researchers.

Formal and informal strategies were considered important by both academics and policy officials to facilitate relationship-building and for sustaining ongoing relationships. Academics and policy officials frequently reported engaging in both of these kinds of relationships with a research partner at any one point in time – with informal and formal connections typically playing complementary roles in building linkages.

Longer term linkages were reported as being the most effective in influencing the uptake of research in policymaking. Relationships built up over time were considered to be more effective, because they better positioned academics and policy officials to work collaboratively. The data suggests that they do this by:

- enabling sufficient "common ground" and trust to be built between partners;
- enhancing individual, organisational and joint research capacities;
- creating opportunities for a wider range of research to be undertaken – with academics and policy officials reporting how well-established relationships better

enabled them to build on past work and be more responsive to new research needs as they arise; and

- enabling research to make a contribution when policy "windows" become apparent.

Policy officials and academics reported how linkage relationships required significant investment in the first instance, but become more self-sustaining as mutual trust, respect, knowledge and skills were grown over time. This reflects the findings of previous research studies, such as those of Easterby-Smith et al (2008) and Huberman (1990).

Given the time-consuming nature of establishing such linkages in the first instance, it is fortunate that having large numbers of links was not found to be associated with research impacts in the multiple linear regression models. Qualitative data supported this finding, and suggested that the most effective mix of linkage relationships is strategic versus extensive. This reflects important themes in the social network literature, which highlights how social capital is created by connections that "bridge" structural holes in networks. Social capital is considered vital for shaping the capacity for innovation (Considine et al, 2009; Lin, 2001).

Chapter five provided findings from data analysis exploring the barriers and facilitators for linkages.

Academics and policy officials both highlighted how policy-relevant research needs to be valued to have influence. Academics need to value policy-relevant research to devote time and energy to its production and mobilisation, in the face of significant institutional and professional barriers for spending time on work of this nature. Policy officials, individually and at an organisational level, need to appreciate the potential for research to enhance policymaking processes to access research and engage with research producers. This thesis highlights how "valuing" research can assist in building research relationships in the first instance, but "successful" research relationships can play a role in building demand for research. Thus "valuing" research is contextual and dynamic – and needs to be an important focus in all efforts to enhance EBP capacities.

The development of "common ground" between academics and policy officials was reported to be highly important in determining the success of linkage relationships in the context of this research project, confirming the focus on cultural dissonance for understanding

research utilisation processes described in the literature. This "common ground" involved shared understandings of the policy process and the role of research within the policy process, some common knowledge base around research and research methods, and a joint commitment to the effective use of research. "Common ground" was considered very important for both initiating and sustaining effective research relationships. The significance of "common ground" for initiating linkages, however, suggests that linkages may not be the simple panacea for addressing cultural dissonance barriers to EBP that they have often been understood to be.

Chapter six presented findings that were outcomes of data analysis efforts to explore more specifically how linkages shape policy research utilisation. The first part of the chapter drew predominantly on qualitative data to identify key themes from both policy official and academic perspectives. As noted in the conclusion to the chapter, themes in the functions highlighted by academics and policymakers met reciprocal needs for effectively engaging in EBP activities. Linkages create access to research and research expertise for policy officials, and for academics, linkages grow research contacts, build a profile around their expertise, and ultimately underpin research opportunities. Linkages were considered to be extremely important for supporting research translation and application efforts. Academics and policy officials also reported how linkages built their capacity to work in ways that best support research impact in policymaking. Finally both policy officials and academics highlighted the value of linkages for creating the mutual trust, respect and "common ground" that meant they had the confidence to capitalise on the additional capacities their relationships provided for them

The second part of the chapter presented findings of multiple regression model analyses using survey data, to explore the nature of association between linkage participation and reported research impact. A strong association between participation in linkage activities and research utilisation was found for both academics and policy officials. This provides quantitative evidence to support qualitative findings suggesting the significance of linkages in policymaking processes.

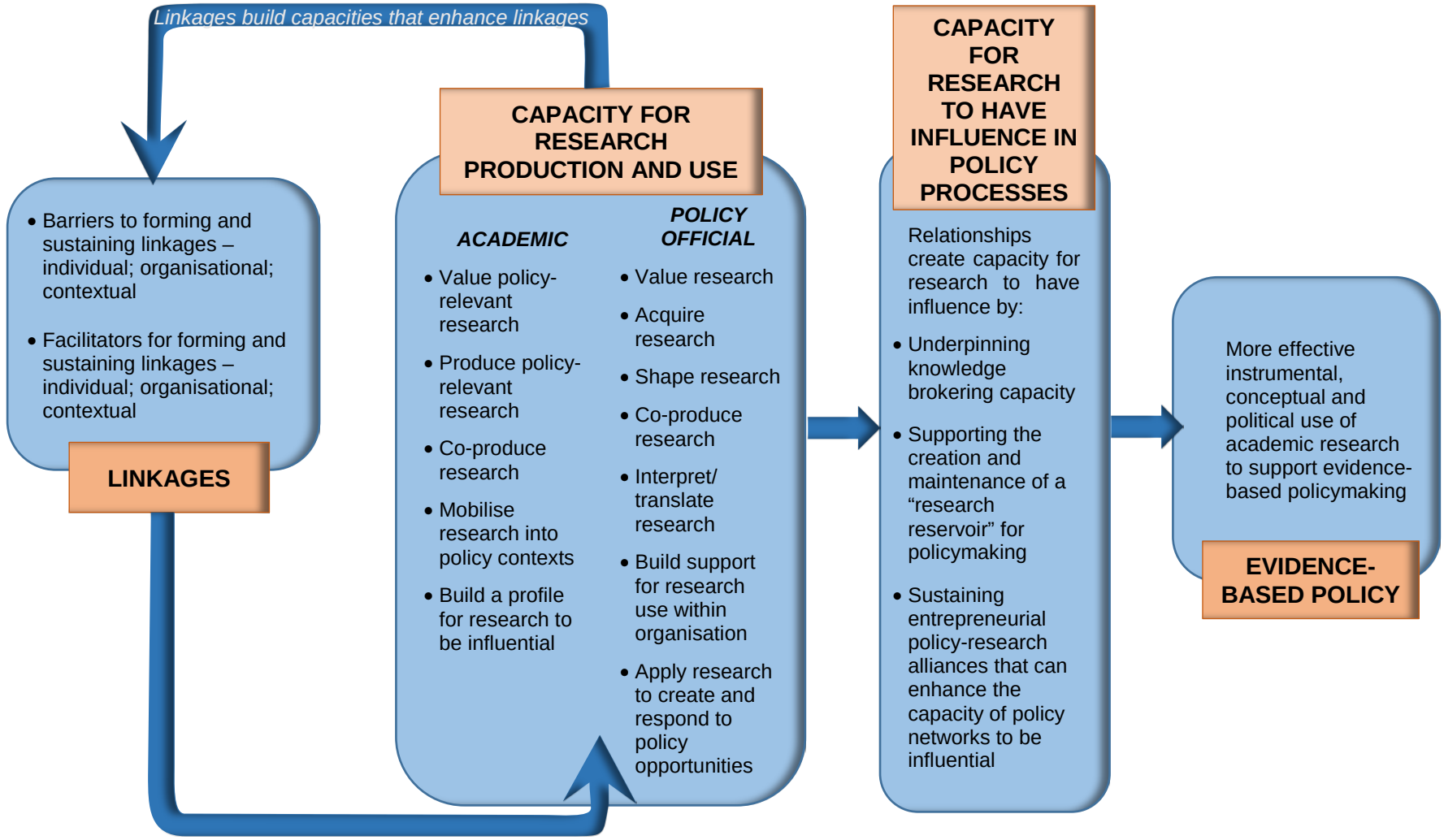
HOW DO LINKAGES CREATE CAPACITY FOR RESEARCH UTILISATION?

Linkages, as I hypothesised in the introductory chapter for this thesis, were reported by both policy officials and academics to assist in research uptake by creating or enhancing a number of specific capacities underpinning research utilisation. The influence of linkages is much broader than bridging cultural dissonance between policy official and research communities. Linkages were found to play an important role in enhancing a number of practical capacities for research production and use. Linkages build academic and policy official capacities separately, by enhancing individual and organisational knowledge, skills and approaches to policy-relevant research. However, linkages also underpin the development of important new joint capacities, such as the capacity to efficiently and effectively co-produce research. These capacities are illustrated as "research production and use" capacities in the model diagram on the following page.

Also illustrated in this diagram – as a distinct type of capacity – are those capacities that linkages create for research to have influence in the policymaking process. Such functions for linkages have not been an overt consideration to date in most models or theoretical frameworks attempting to explain EBP. However, this research project has identified a number of clear ways that linkages support building "reservoirs" of policy-relevant research, and creating a profile for these, to support policymaking processes over time. For example, academics and policy officials alike noted how their relationships helped them to jointly accumulate research knowledge, monitor policy contexts, and then mobilise research resources effectively as policy opportunities arose. In doing so, linkages create a much greater potential for research to play a role in shaping policy directions and implementation. Finally, the evolving process whereby linkages build capacities that enhance linkages – in addition to their role in shaping more well-developed capacities for research production and use – is documented in the diagram.

Thus, this model diagram endeavours to capture the more integrated way of understanding the influence of linkages for EBP, which the analysis of data gathered for this project suggests.

Figure 32 – Model – How Linkages Build Capacity for EBP



IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The model presented on the previous page illustrates how cultural dissonance focused understandings of the influence of linkages in the policymaking process do not capture the full range of ways that linkages support the uptake of research in policymaking processes. A better understanding of a fuller range of functions for linkage relationships is far more helpful when thinking about strategies to support more targeted and effective EBP efforts. This broader view, in particular, supports thinking about conceptual and political uses of research, which have been under-emphasised to date. Conceptual and political uses of research are critical in policymaking, which is inherently a political process (Newman & Head, 2015). Instrumental uses would not seem possible without these as a precursor.

Chapter five, which explored the barriers to, and facilitators of, linkage relationships highlighted that linkage strategies may not be the kind of easy panacea they have historically been viewed to be. My findings indicated that a certain degree of "common ground" needs to be in place to create the capacity for effective linkages in the first place. Early career academics may need support to build the kind of professional credibility and reputation that enables them to be influential in policy contexts. Further, there remains a fundamental need to address how research is valued in policymaking contexts, as this was found to be one of the most significant drivers for effective research-policy connections. Thus, linkage-related strategies for enhancing EBP, and the work required to create linkage-friendly contexts in the first place, whilst potentially very effective, requires a significant investment in time, commitment and resources.

Given the large range of functions (as illustrated in the model on the previous page) that linkages serve in supporting EBP, an investment in linkages in policymaking contexts increasingly characterised by economic rationalism; specialisation and out-sourcing (Head, 2015) may be more justifiable. Further it may become more feasible to accord greater institutional priority to relationship-building activities in research production contexts, such as universities. However, a stronger case for actively enhancing linkages to support the policy uptake of social research evidence needs to be built alongside a more refined understanding and evidence-base for linkages again. This understanding and evidence-

base needs to specifically suggest how linkages can be more strategically and efficiently employed across a full range of policymaking contexts to enhance EBP.

As highlighted in chapter two, this thesis was not intended to provide a highly detailed or definitive picture of linkage relationships and their influence on research use in policymaking across all contexts. Instead, it drew on four large data sources to create a fuller picture of the character and processes associated with linkages in policy contexts, which when taken together with the array of theory and other strands of evidence detailed in the literature, could provide a stronger foundation for future research. This study, like many before it, drew on interview or survey data that relied on self-reporting. The mixed methodology approach applied endeavoured to mitigate some of the shortcomings inherent in this type of data. Future research could usefully be undertaken to explore how linkages support EBP using research methods, such as observational methods, network analyses and case study evaluations of "real world applications" of linkage strategies to enhance research impact. These methods would not only help to enhance confidence in the existing evidence-base around linkages, but would provide access to more nuanced understandings of effective linkage practices and processes.

Findings for this project suggest that the role of individuals in driving research relationships and research uptake should not be underestimated. The data revealed many instances of both academics and policy officials taking personal initiative and individual responsibility for initiating and supporting linkages between academic and policymaking contexts. This reflects the findings of some previous research efforts, such as Bogenschneider and Corbett's (2010) conclusions about policy-minded researchers and enthusiastic policy users of research. Documenting a more detailed, evidence-based account of what makes these individuals effective as "champions" and "knowledge brokers" might support efforts to formalise more of these roles where they have proven to provide valuable links that support EBP. This would enhance the capacity of these individuals to build important bridges between research and policy worlds.

Chapter four identified how policy officials and academics engage in a wide range of linkage relationships. Further work needs to be undertaken to explore the relevance and effectiveness of each of the types of linkage relationship identified for different contextual situations. For example, this work could usefully explore which linkages are more feasible

and effective for different political contexts or in different sector and/or disciplinary environments. Further, Lomas & Brown's (2009) work outlined in chapter 2, which explored the role of linkages across a range of different policy making activities- namely the agenda setting, developing new policies, and monitoring and modifying existing policies activities of policymakers – suggested that different types of linkage relationships might be important for research use within each of these policymaking tasks. The nature of the data analysed for this project meant that building on this work was not possible in my thesis, but is another dimension of context that could be usefully be explored in future research.

In terms of the co-production of research, very little work has been undertaken to develop models or to identify success factors that would provide more guidance for agencies in planning how best to structure their efforts or for allocating resources to support this work.

Engagement in other forms of linkages to support more intensive co-production relationships was noted as an important strategy for enhancing research uptake by my research respondents. A better understanding of how different types of linkages can be employed as a "package", if you like, to help to build important longer term co-production relationships in feasible ways, could be very useful for informing linkage-related strategies to enhance research use.

My research findings concerning the particular importance of longer-term linkage relationships for supporting research utilisation – and the examples of investment in longer-term formalised relationship building efforts (for example, the extended contracted research partnerships) highlighted by both academic and policy official respondents in chapter four – suggest a need to find efficient ways to better support higher quality, ongoing connections between research and policy contexts. Numerous academic and policy official respondents for this project highlighted how knowledge brokering organisations created greater efficiencies around linkage activities between policy officials and researchers that would support effective engagement over time. Institutionalised knowledge brokering has also been suggested as offering a more effective and efficient way of structuring longer term linkages between research and policy worlds in the research utilisation literature (Head, 2016; Lenihan, 2015; Sebba, 2013). However, this kind of knowledge brokering has been the subject of very little research attention to date, and thus there is a need to explore and record how it has been, and could be, used to strategically enhance EBP.

Finally, the introduction to this thesis noted how policymakers are both the political and administrative decision-makers who play a role in gathering policy information, developing policy advice, creating policy documents and tools, implementing and evaluating them. The nature of data drawn on for this project means that this thesis has really only explored the experiences of policymakers in administrative roles. Further research, targeting political decision-makers and their advisers, is important in developing a fuller picture of linkages. This work may identify additional capacities for EBP that are underpinned by linkages. It may also suggest differing emphasis on functions and capacities for different kinds of policymakers within the model proposed in this thesis.

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APPENDICES

APPENDIX 1 – ACADEMIC SURVEY INSTRUMENT

Policy Relevance of Social Science Research:
Academic Survey

Private and in Confidence

Please return to:

Prof. Brian Head
Institute for Social Science Research
Level 4 General Purposes North 3
Campbell Rd
The University of Queensland
St Lucia QLD 4072

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Academic Survey

Australian Research Council Linkage Project on Utilisation of Social Science Research in Policy Development And Program Review

Description

Thank you for participating in this study about the policy relevance of academic research. We would like to benefit from your professional experience and 15-20 minutes of your time. Researchers, as well as policy makers and practitioners, often wonder what becomes of the results of research in the social sciences. At present, we know very little on the subject. We are conducting a survey on the use of social science research findings and results will permit us to better understand the diversity of uses found for social research, as well as the factors that determine the policy and practical use of social research evidence.

Confidentiality

All information you provide will be treated as confidential. The names of individual persons are not required in any of the responses. The survey is being conducted on behalf of the Institute for Social Science Research (ISSR) at the University of Queensland. Contact details of potential participants have been obtained through publicly available information and will only be used for the purposes of the survey. The methodology for this study has been approved by The University of Queensland Ethics Committee.

Consent to Participate

Completion of the survey is taken as an indication of your consent to participate in this project.

Survey design and definitions

The questionnaire is divided into a number of sections, covering your research and some background information about your position. You will need to respond to questions in different ways. For most questions, you can simply click inside the appropriate box or select your answer from a drop down list. For others, you may be required to type in the spaces provided. **Throughout the survey we make reference to whether research has an influence on policy-makers within government, practitioners within public and community sectors, or practitioners within private [sector] organisations. Here we are distinguishing between policy-makers located within government at federal or state levels, service providers within the government and non-government sectors and managers and professionals in for- profit private sector organisations, who may all use social science research evidence.**

Further information about the project

Please contact Professor Brian Head, University of Queensland Institute of Social Science Research (07 3346 7450 or email brian.head@uq.edu.au) if you have any questions or if you require further information about the project.

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About You

1. Are you male or female? (please tick one only)

☐ Male ☐ Female

2. In what year were you born?

19 ___ ___

Professional Profile

3. What is your current position?

☐ Lecturer Level A
☐ Lecturer Level B
☐ Senior Lecturer Level C
☐ Associate Professor/Reader Level D
☐ Professor Level E
☐ Other (please specify): _____

4. Is your position primarily in a : (please tick one only)

☐ University Teaching and Research Department
☐ University Research Centre or Institute
☐ Other Research Centre/Institute (please specify):

_____

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5. With which university are you currently affiliated: (please tick one only)

- ☐ Australian Catholic University
- ☐ Australian National University
- ☐ Bond University
- ☐ University of Melbourne
- ☐ Central Queensland University
- ☐ Charles Darwin University
- ☐ Charles Sturt University
- ☐ Curtin University of Technology
- ☐ Deakin University
- ☐ Edith Cowan University
- ☐ Flinders University
- ☐ Griffith University
- ☐ James Cook University
- ☐ La Trobe University
- ☐ Macquarie University
- ☐ Monash University
- ☐ Murdoch University
- ☐ Queensland University of Technology
- ☐ RMIT University
- ☐ Southern Cross University
- ☐ Swinburne University of Technology
- ☐ University of New South Wales
- ☐ University of Adelaide
- ☐ University of Ballarat
- ☐ University of Canberra
- ☐ University of Melbourne
- ☐ University of New England
- ☐ University of New South Wales
- ☐ University of Newcastle
- ☐ University of Notre Dame Australia
- ☐ University of Queensland
- ☐ University of South Australia
- ☐ University of Southern Queensland
- ☐ University of Sydney
- ☐ University of Tasmania
- ☐ University of Technology Sydney
- ☐ University of the Sunshine Coast
- ☐ University of Western Australia
- ☐ University of Western Sydney
- ☐ University of Wollongong
- ☐ Victoria University
- ☐ Other (please specify): _____

6. Have you previously been employed in: (please circle the appropriate number for each statement)

	No	Yes, less than 2 years	Yes, 2-5 years	Yes, 6 years or more
A government agency/department?	1	2	3	4
The private sector?	1	2	3	4
The not-for-profit sector?	1	2	3	4

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7. What is the nature of your primary position?

- ☐ Research and Teaching
- ☐ Research Only

8. How would you categorise your *major* research discipline:

- ☐ Education
- ☐ Economics
- ☐ Anthropology
- ☐ Sociology
- ☐ Criminology
- ☐ Geography
- ☐ Demography
- ☐ Political Science
- ☐ Social Work
- ☐ Psychology
- ☐ Other (please specify: _____)

9. Please indicate the number of research grants that you have received: (if none, write 0)

ARC Discovery ___ ___

ARC Linkage ___ ___

Other external competitive grants ___ ___

10. We're interested in partnerships with external organisations. Please indicate the number of external research partners with whom you have worked:

(if none, write 0)

Commonwealth Government Departments and agencies: __ __

State Government Departments and agencies: __ __

Local government bodies: __ __

Not for profit organisations: __ __

Private sector organisations: __ __

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Research Context

11. **In what role do you generally carry out your research activities? (**Please circle the appropriate number for each statement)

	Always	Usually	Sometimes	Rarely	Never	Does not apply
Leading a research team	1	2	3	4	5	6
With investigators from within my own research discipline	1	2	3	4	5	6
Within multidisciplinary teams	1	2	3	4	5	6
With policy-makers and practitioners from government and non-government institutions	1	2	3	4	5	6
As a sole investigator	1	2	3	4	5	6

12. **Please indicate the degree of importance of the different funding sources listed below for ensuring your research can be conducted:**

	Very important	Important	Neutral	Unimportant	Very unimportant	Does not apply
My university's internal research funds	1	2	3	4	5	6
Funding organisations, (example: ARC, NHMRC, CRC)	1	2	3	4	5	6
Not for profit organisations	1	2	3	4	5	6
Federal government agencies (not including national funding bodies such as ARC)	1	2	3	4	5	6
State government agencies	1	2	3	4	5	6
Local government agencies	1	2	3	4	5	6
Private sector organisations	1	2	3	4	5	6

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13. Please indicate how often you use the following approaches in your research:

(please circle the appropriate number for each statement)

	Always	Usually	Sometimes	Never
Quantitative: eg. Survey research, statistical analysis, GIS	1	2	3	4
Qualitative: eg. Interviews, focus groups, ethnography, observation	1	2	3	4
Mixed methods (both quantitative and qualitative)	1	2	3	4
Theoretical/conceptual	1	2	3	4
Critiques of policy or practice	1	2	3	4

14. To what extent is the majority of your research directed towards the following audiences:

	Always	Usually	Sometimes	Never
Policy makers within government	1	2	3	4
Practitioners/managers within the public sector	1	2	3	4
Practitioners/managers within the community sector	1	2	3	4
Practitioners/managers within the private sector	1	2	3	4
Academic researchers	1	2	3	4

15. When my research is focused on policy, policy makers have generally found the research to be:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
Relevant to their needs and expectations	1	2	3	4	5	6
Valid and reliable	1	2	3	4	5	6
Trustworthy	1	2	3	4	5	6

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Dissemination and adaptation of research

16. Please indicate your opinion with regard to the following statements. (Please circle the appropriate number for each statement)

	To a great extent	To some extent	Neutral	Very little	Not at all
I have experience in disseminating my research to non-academic end-users	1	2	3	4	5
My faculty/school/research centre/institute has experience in research dissemination to non-academic end-users	1	2	3	4	5

17. Please indicate the importance of the following activities for carrying-out your research.

	Very important	Important	Neutral	Unimportant	Very unimportant	Does not apply
Preparing and conducting meetings in order to plan the subject and scope of projects with end-users (eg. government policy personnel, practitioners/managers within public or community sectors or private sector organisations)	1	2	3	4	5	6
Regular formal meetings to report on a study's progress with end-users	1	2	3	4	5	6
Formal meetings to discuss findings with end-users	1	2	3	4	5	6
Preparing and implementing research dissemination activities for end-users	1	2	3	4	5	6

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18. **When your research projects are focused on end-users, please indicate the importance you have accorded to the following factors. (By 'end-users' we are referring to either policy-makers within government, or practitioners/managers within public or community sectors or private sector organisations.)** (Please circle the appropriate number for each statement)

	Very important	Important	Neutral	Unimportant	Very unimportant	Does not apply
Readability and ease of comprehension of my reports and research articles	1	2	3	4	5	6
Specific, operational nature of conclusions or recommendations	1	2	3	4	5	6
Provision of data that can be analysed by end-users	1	2	3	4	5	6
Sensitivity to end-users' expectations	1	2	3	4	5	6
Presentation of reports (graphics, colour, packaging)	1	2	3	4	5	6
On-time presentation of research findings to end-users	1	2	3	4	5	6
Attention to 'deliverables'	1	2	3	4	5	6

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19. How important have the following methods been for *presenting and/or discussing* your research? (Please circle the appropriate number for each statement)

	Very important	Important	Neutral	Unimportant	Very unimportant	Does not apply
Informal contacts with policy personnel of government agencies	1	2	3	4	5	6
Informal contacts with public or community sector practitioners	1	2	3	4	5	6
Informal contacts with personnel of private sector organisations	1	2	3	4	5	6
Participation in seminars and workshops organised by government policy agencies	1	2	3	4	5	6
Participation in seminars and workshops organised by practitioners within public or community sectors	1	2	3	4	5	6
Participation in seminars and workshops organised by private sector organisations	1	2	3	4	5	6
Presentations to parliamentary committees	1	2	3	4	5	6
Sending reports to government policy agencies	1	2	3	4	5	6
Sending reports to practitioners within public or community sectors	1	2	3	4	5	6
Sending reports to private sector organisations	1	2	3	4	5	6
Sending reports to parliamentary committees	1	2	3	4	5	6
Publication of articles in refereed journals	1	2	3	4	5	6
Participation in radio and/or television programs	1	2	3	4	5	6
Publication of articles in non-academic outlets	1	2	3	4	5	6
Publication in electronic media, e.g. blogs and other social media	1	2	3	4	5	6

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Barriers to research transfer and uptake

20. Researchers may experience a number of impediments to the transfer and uptake of their research. For each of the following statements, please indicate the extent to which you agree or disagree. (Please circle the appropriate number for each statement)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
There are high costs (eg. time and resources) in translating the results of research for policy-makers and practitioners	1	2	3	4	5	6
There are insufficient forums and networks available for bringing together researchers and non-academic end-users of research	1	2	3	4	5	6
Academic reward systems do not adequately recognise dissemination of work to non-academic end-users	1	2	3	4	5	6
The academic requirement to publish primarily in peer-reviewed journals inhibits a focus on policy and practitioner audiences	1	2	3	4	5	6
Networks and partnerships that might support research uptake are often undermined by turnover of contact staff in public agencies	1	2	3	4	5	6
Policy-makers and practitioners lack expertise in how to interpret or understand the findings of research	1	2	3	4	5	6
Policy-makers and practitioners lack expertise in how to apply the results of research to policy problems	1	2	3	4	5	6

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Benefits of carrying out your research with partners from government, industry or the community sector

21. Researchers may experience a number of benefits when carrying out research activities with partners from government, industry or the community sector. Below are a series of statements regarding these benefits. We would like you to indicate the extent to which you agree or disagree with each. (Please circle the appropriate number for each statement)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
I have been able to use data that would otherwise be difficult to access	1	2	3	4	5	6
Research partnerships have provided me with opportunities for my research to have an impact on policy and practice	1	2	3	4	5	6
Research partnerships have helped to increase my industry contacts	1	2	3	4	5	6
My industry contacts have helped with developing future research projects	1	2	3	4	5	6
Research partnerships enable me to generate extra income for my work unit	1	2	3	4	5	6
Such projects have provided me opportunities to commercialise research outcomes	1	2	3	4	5	6
Research partnerships have helped me with career advancement	1	2	3	4	5	6
Such projects have required me to be pragmatic and realistic in relation to research outcomes for industry partners	1	2	3	4	5	6
Research partnerships have enabled me to publish in a broad range of publication outlets	1	2	3	4	5	6
I find projects with external partners more satisfying than fundamental "blue sky" research	1	2	3	4	5	6

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Problems with carrying out your research with partners from government, industry or the community sector

22. Researchers may experience a number of problems when carrying out research activities with partners from government, industry or the community sector. Below are a series of statements regarding these potential problems. We would like you to indicate the extent to which you agree or disagree with each. Please choose a single response for each statement:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Not applicable
There are inadequate university resources to support research partnerships with end-users	1	2	3	4	5	6
I find there are different research orientations between academics and external partners	1	2	3	4	5	6
You need to invest a lot of time in coordinating the work between different partners	1	2	3	4	5	6
Confidentiality requirements often restrict what you can report and publish	1	2	3	4	5	6
You can lose ownership of intellectual property	1	2	3	4	5	6
You are subject to delays that impede your ability to publish results in a timely manner	1	2	3	4	5	6
I find there is pressure to produce favourable results for partners	1	2	3	4	5	6
I am under pressure from my work unit to undertake contract research to meet budget requirements	1	2	3	4	5	6
I believe such projects overemphasise applied outcomes	1	2	3	4	5	6
I do not feel comfortable working on projects carried out in collaboration with industry or government agencies	1	2	3	4	5	6
I feel that industry partners place too much emphasis on specific deliverables	1	2	3	4	5	6
I feel that there is too much pressure to meet deadlines	1	2	3	4	5	6
External partners do not appreciate the full costs of research	1	2	3	4	5	6
The ethics process can be time consuming and cumbersome	1	2	3	4	5	6
The complexity of contractual arrangements can lead to delays in commencing research	1	2	3	4	5	6

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23. When it comes to the utilisation of academically produced social science research what characteristics do you think end-users prioritise? (By 'end-users' we are referring to either policy-makers within government, or practitioners/ managers within public or community sectors or private sector organisations.) Please choose a single response for each statement:

	High priority	Moderate priority	Neutral	Low priority	Not a priority
The scientific quality of the research is high	1	2	3	4	5
Research findings are unbiased	1	2	3	4	5
Findings are available at a time when decisions need to be made	1	2	3	4	5
Findings have direct implications for policy and practice	1	2	3	4	5
The research adds to theoretical knowledge	1	2	3	4	5
Research findings are written in a clear style for end-users	1	2	3	4	5
The statistical analysis is of high quality	1	2	3	4	5
Findings can be generalised beyond the study's population	1	2	3	4	5
Research reports provide brief summaries of key findings	1	2	3	4	5
Research recommendations are economically feasible	1	2	3	4	5
Research findings support a position already held by the end-user	1	2	3	4	5
Research offers new ways of thinking about an issue	1	2	3	4	5
Research recommendations are politically feasible	1	2	3	4	5
Reputation of the researcher	1	2	3	4	5

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Use of research results

24. The utilisation of social science research by end-users is a complex activity. This includes transmitting one's research through publications, end-users understanding the implications of your research findings, your research being cited in reports, efforts being made to adopt your research findings, your research influencing decision-making or changing policy and practice. By end-users we are again referring to policy-makers within government, and practitioners/managers within public and community sectors or private sector organisations. Please choose a single response for each statement:

	Always	Usually	Sometimes	Rarely	Never	Don't know	Does not apply
I transmit my research results to end-users	1	2	3	4	5	6	7
My research reports have been read and understood by end-users	1	2	3	4	5	6	7
My work has been cited in reports and strategies by end-users	1	2	3	4	5	6	7
Efforts were made to adopt the results of my research by end-users	1	2	3	4	5	6	7
My research results have influenced the choices and decisions of end-users	1	2	3	4	5	6	7
My research has been applied by end-users	1	2	3	4	5	6	7
My work has been cited in reports published by parliamentary committees	1	2	3	4	5	6	7

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Impact of Research

25. Please indicate your opinion regarding the following statements: (Please circle the appropriate number for each statement)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
My research has influenced decisions on the allocation of resources to policies and programs	1	2	3	4	5	6
My research has been used to shape and inform the design and implementation of policies and programs	1	2	3	4	5	6
My research has been used to alter or transform how policy-makers and practitioners think about and understand issues or choices	1	2	3	4	5	6
My research has been used to put new issues on the public and political agenda	1	2	3	4	5	6
My research has been used to justify or legitimise choices already made by policy-makers and practitioners	1	2	3	4	5	6

General issues concerning research and its utilisation not previously covered

26. We are interested in your comments on matters concerning research and its use by policy makers and practitioners that might not have been covered elsewhere in this survey. If you have any comments you would like to make, please include them below:

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Future Contact

In order to obtain a deeper understanding of the policy relevance of academic research, the Chief Investigators intend to undertake a number of interviews with survey participants. Please indicate your preference by choosing a response below:

☐ I would be willing to participate in an interview, if requested

☐ I would prefer **not** to participate in an interview

If you answered 'yes' to the question above, please provide the relevant contact details:

Name: _____

Address: _____

Suburb/City: _____

State: _____ Postcode: _____

Country: _____ Email: _____

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Thank you

Thank you for taking the time to complete this questionnaire.

Your input will be valuable in contributing to our understanding of research utilisation.

A summary of the results will be available in due course from The University of Queensland Institute for Social Science Research

(http://www.issr.uq.edu.au).

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APPENDIX 2 – POLICY OFFICIAL SURVEY INSTRUMENT

Policy Relevance of Social Science Research:
Public Service Survey

Private and in Confidence

Please return to:

Prof. Brian Head
Institute for Social Science Research
Level 4 General Purposes North 3
Campbell Rd
The University of Queensland
St Lucia QLD 4072

Public Service Survey

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Australian Research Council Linkage Project on Utilisation of Social Science Research in Policy Development And Program Review

Description

Thank you for participating in this study about the policy relevance of academic research. We would like to benefit from your professional experience and 15-20 minutes of your time. Researchers, as well as policy makers and practitioners, often wonder what becomes of the results of research in the social sciences. At present, we know very little on the subject. We are conducting a survey on the use of social science research findings and results will permit us to better understand the diversity of uses found for social research, as well as the factors that determine the policy and practical use of social research evidence.

Confidentiality

All information you provide will be treated as confidential. The names of individual persons are not required in any of the responses. The survey is being conducted on behalf of the Institute for Social Science Research (ISSR) at the University of Queensland. The methodology for this study has been approved by The University of Queensland Ethics Committee and your department.

Consent to Participate

Completion of the survey is taken as an indication of your consent to participate in this project.

Survey design and definitions

The questionnaire is divided into a number of sections, covering your work-related use of research and some background information about your position. You will need to respond to questions in different ways. For most questions, you can simply tick the appropriate box or circle the appropriate number. For others, you may be required to write in the spaces provided.

Further information about the project

Please contact Professor Brian Head, University of Queensland Institute of Social Science Research (07 3346 7450 or email brian.head@uq.edu.au) if you have any questions or if you require further information about the project.

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About You

1. Are you male or female?

☐ Male ☐ Female

2. In what year were you born?

19___ ___

Professional Profile

3. How long have you worked in the public service? (Please specify years and/or months)

_____ Years

_____ Months

4. Have you previously been employed in:

	Yes	No
The university sector	1	2
The private sector	1	2
The not-for-profit sector	1	2

5. What is the highest level of education you have attained?

☐ Year 12

☐ Advanced Diploma/Diploma

☐ Bachelor Degree

☐ Graduate Diploma/Graduate Certificate

☐ Postgraduate Degree

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6. In which government do you work?

- ☐ Commonwealth
- ☐ Queensland
- ☐ New South Wales
- ☐ Victoria

7. In which department do you work?

(Please choose **one** department only for the government indicated in Q6.)

Commonwealth

- ☐ Productivity Commission
- ☐ Australian Bureau of Statistics (ABS)
- ☐ Treasury
- ☐ Department of the Prime Minister and Cabinet (DPMC)
- ☐ Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA)
- ☐ Department of Education, Employment and Workplace Relations (DEEWR)

New South Wales

- ☐ Department of Education and Communities (DEC)
- ☐ Treasury
- ☐ Department of Premier and Cabinet
- ☐ Department of Health
- ☐ Department of Family and Community Services (FACS)

Queensland

- ☐ Queensland Health
- ☐ Department of Communities
- ☐ Department of Employment, Economic Development and Innovation (DEEDI)
- ☐ Department of the Premier and Cabinet
- ☐ Treasury
- ☐ Department of Education and Training (DET)

Victoria

- ☐ Department of Planning and Community Development (DPCD)
- ☐ Department of Education and Early Childhood Development (DEECD)
- ☐ Department of Human Services (DHS)
- ☐ Department of Premier and Cabinet
- ☐ Treasury
- ☐ Department of Health

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8. What is the major policy field in which you work? Please specify, e.g. Housing, Mental Health, General policy coordination.

Please specify: _____

9. Which of the following best describes your current position?

- ☐ Senior executive
- ☐ Manager
- ☐ Policy officer
- ☐ Data analyst

10. In general, what proportion of your time is spent on the following activities?

(Your answer must add to 100%)

General administrative activities and meetings ___ ___

Reading and research on policy-related issues ___ ___

Data management and analysis ___ ___

Formal and/or informal meetings and communication around policy-related issues ___ ___

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11. In your current role, approximately how often are you involved in the following activities?

	Daily	Weekly	Monthly	Several times a year	Yearly	Never
Collect policy-related data	1	2	3	4	5	6
Collect policy-related information	1	2	3	4	5	6
Conduct policy-related research	1	2	3	4	5	6
Identify policy options	1	2	3	4	5	6
Appraise policy options	1	2	3	4	5	6
Analyse policy-related data	1	2	3	4	5	6
Implement or deliver policies or programs	1	2	3	4	5	6
Negotiate with stakeholders	1	2	3	4	5	6
Negotiate with central agencies	1	2	3	4	5	6
Negotiate with local government agencies	1	2	3	4	5	6
Negotiate with other state government agencies	1	2	3	4	5	6
Negotiate with program managers	1	2	3	4	5	6
Consult with the public	1	2	3	4	5	6
Consult with stakeholders	1	2	3	4	5	6

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Sources of research engaged

12. What level of importance does your work unit place on the information available from each of the sources listed below to inform decision-making?

	Very important	Important	Neutral	Unimportant	Very unimportant
Internal agency staff	1	2	3	4	5
Other state government agencies in your state	1	2	3	4	5
Comparable state government agencies in other states	1	2	3	4	5
Federal government agencies	1	2	3	4	5
Local government	1	2	3	4	5
International organisations	1	2	3	4	5
University researchers	1	2	3	4	5
Interest groups	1	2	3	4	5
Professional or industry associations	1	2	3	4	5
Think Tanks	1	2	3	4	5
Private consultants	1	2	3	4	5
News media	1	2	3	4	5

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Research Context

13. **Personally in the last 12 months how often have you consulted each source of information listed below?**

	Very often	Often	Sometimes	Rarely	Not at all
Internal agency staff	1	2	3	4	5
Other state government agencies in your state	1	2	3	4	5
Comparable state government agencies in other states	1	2	3	4	5
Federal government agencies	1	2	3	4	5
Local government	1	2	3	4	5
International organisations	1	2	3	4	5
University researchers	1	2	3	4	5
Interest groups	1	2	3	4	5
Professional or industry associations	1	2	3	4	5
Think Tanks	1	2	3	4	5
Private consultants	1	2	3	4	5
News media	1	2	3	4	5

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Consultation of academic research

14. Please indicate your opinion regarding each of the following statements.

	Frequently	Occasionally	Rarely	Never
In the last 12 months, I have used journal articles and books produced by academics to understand policies and programs in my field.	1	2	3	4
In the last 12 months, I have used research reports produced by academics to understand policies and programs in my field.	1	2	3	4

15. Within the past 12 months, have you written one or more documents that draw on academic research?

☐ Yes ☐ No

16. How often do you experience difficulties in accessing full-text versions of academic articles and reports?

☐ Always
☐ Usually
☐ Sometimes
☐ Never

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Methodological preferences

17. Concerning research you use to inform decision-making, please indicate whether it is based on these methodologies:

	Always	Usually	Sometimes	Never
Quantitative: eg. Survey research, analysis of secondary data	1	2	3	4
Qualitative: eg. Interviews, focus groups, ethnography, observation	1	2	3	4
Mixed (both quantitative and qualitative)	1	2	3	4
Program evaluation	1	2	3	4
Literature reviews	1	2	3	4

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User's context

18. Concerning the particularities of the context in which you work, what is your opinion regarding each of the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Does not apply
Academic research results are considered relevant by my workplace colleagues.	1	2	3	4	5	6
My colleagues' research work, studies, and reports are more useful to me than the research work, studies, and reports produced by academic researchers.	1	2	3	4	5	6
Academic research work, studies, and reports have been available when needed.	1	2	3	4	5	6
Research is important in my professional field.	1	2	3	4	5	6

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Access, infrastructure and capacity

19. In addition to using general search engines e.g. Google, do you access electronic bibliographic databases from which to download or print academic journal abstracts, articles or reports?

☐ Yes (go to Question 21) ☐ No (go to Question 20)

20. If you don't access electronic bibliographic databases, is this because:

	Yes	No
The department, agency or unit you work for does not subscribe to any electronic bibliographic database.	1	2
You don't have access from your work station.	1	2
You have not requested access because such a resource would not be relevant to your role.	1	2
You would rather consult a work colleague about sourcing relevant articles or reports.	1	2
You don't know how to use these databases.	1	2
You can't download full-text versions of academic articles and reports from these databases.	1	2
You would prefer to use search engines on the web (e.g. Google).	1	2

21. If yes, how frequently do you access these electronic bibliographic databases?

☐ A few times during the year
☐ From time to time
☐ Most months
☐ Most weeks
☐ Multiple times a week

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22. Do you have any people in your department, agency or unit whose role is to collate and disseminate research findings among staff?

- ☐ Yes (go to Question 23)
- ☐ No (go to Question 24)
- ☐ Don't know (go to Question 24)

23. If yes, how frequently do you consult with such people about research pertaining to policy-relevant decisions in your unit?

- ☐ A few times during the year
- ☐ From time to time
- ☐ Most months
- ☐ Most weeks
- ☐ Multiple times a week

24. Do you have any people in your department, agency or unit whose role is to link staff to researchers outside the public service?

- ☐ Yes (go to Question 25)
- ☐ No (go to Question 26)
- ☐ Don't know (go to Question 26)

25. If yes, how often do you interact with such people?

- ☐ A few times during the year
- ☐ From time to time
- ☐ Most months
- ☐ Most weeks
- ☐ Multiple times a week

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Accessing and using research

26. When it comes to accessing and using research evidence in your day-to-day duties, please indicate the extent of your agreement with the following statements:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Does not apply
I do not have the necessary skills to interpret results from statistical analyses.	1	2	3	4	5	6
I lack expertise in how to apply the results of research studies.	1	2	3	4	5	6
I lack sufficient decision-making power to ensure policy is based on research.	1	2	3	4	5	6
There is not enough time in the day or week to read relevant research studies.	1	2	3	4	5	6
The use of research evidence is a low priority of my unit.	1	2	3	4	5	6
Staff are not encouraged to use research evidence.	1	2	3	4	5	6
There is little opportunity to build relationships with researchers outside the public service.	1	2	3	4	5	6
My department has no formal processes to translate academic research into policy.	1	2	3	4	5	6

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27. When it comes to policy-related skills, please indicate the extent of your agreement with the following statements:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Does not apply
I have the necessary skills to collect and analyse policy-related data or information.	1	2	3	4	5	6
My work colleagues have the skills to collect and analyse policy-related data or information.	1	2	3	4	5	6
Staff in this department are provided with training in collecting and analysing policy-related data or information.	1	2	3	4	5	6

28. When it comes to policy-related skills, please indicate whether you agree with the following statements:

	Yes	No
I have personally undertaken formal research skills training.	1	2
I have personally undertaken formal policy skills training.	1	2
I have learned my research skills on-the-job rather than by formal training.	1	2
I have learned my policy analysis skills on-the-job rather than by formal training.	1	2

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Linkages

29. We are interested in relationships with external researchers and research organisations. Please indicate the number of external research partners with whom you have worked in the *past three years*: (if none, write 0)

Other State or Commonwealth Department or agencies ___ ___

University research centres and Institutes ___ ___

Private sector research organisations ___ ___

Cooperative Research Centres (CRCs) ___ ___

Individual university researchers ___ ___

International organisations ___ ___

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Contracting of academic research

30. Does your work unit contract academics to undertake research projects?

- ☐ Yes (go to Question 31)
- ☐ No (go to Question 32)
- ☐ Don't know (go to Question 32)

31. When your work unit does contract academics to undertake research projects, please indicate your opinion regarding the following:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
In general, the research has been of a high quality.	1	2	3	4	5	6
The research has been completed on-time and within budget.	1	2	3	4	5	6
Reports have been written in a clear concise manner.	1	2	3	4	5	6
The outcomes of the research have met expectations.	1	2	3	4	5	6
The results of the research have been used to inform policy-related decisions.	1	2	3	4	5	6
Results have been completed in time to inform policy-related decisions.	1	2	3	4	5	6

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32. In relation to your work area, please indicate the importance you give to the following means of obtaining research information.

	Very important	Important	Neutral	Unimportant	Very unimportant	Does not apply
Searching the Internet	1	2	3	4	5	6
My department's library	1	2	3	4	5	6
Meetings with work colleagues in my department	1	2	3	4	5	6
Meetings with personnel from other departments	1	2	3	4	5	6
Meetings with university researchers	1	2	3	4	5	6
Meetings with private sector consultants	1	2	3	4	5	6
Emailing or phoning colleagues in my department	1	2	3	4	5	6
Emailing or phoning personnel in other departments	1	2	3	4	5	6
Emailing or phoning academics about their research	1	2	3	4	5	6
Emailing or phoning private sector consultants	1	2	3	4	5	6
Conferences or seminars involving university researchers	1	2	3	4	5	6
Commissioning university researchers	1	2	3	4	5	6
Commissioning private sector consultants	1	2	3	4	5	6
Membership on expert panels or committees involving researchers	1	2	3	4	5	6
Active involvement in research projects with academics	1	2	3	4	5	6
Active involvement with research projects conducted by other departments	1	2	3	4	5	6
Involvement in forums/networks that share research	1	2	3	4	5	6

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Characteristics of research

33. Please indicate the priority you have accorded to the following factors when using research produced by academic researchers:

	High priority	Moderate priority	Neutral	Low priority	Not a priority
The scientific quality of the research	1	2	3	4	5
Research findings are unbiased	1	2	3	4	5
Findings are available at a time when decisions need to be made	1	2	3	4	5
Findings have direct implications for policy and practice	1	2	3	4	5
The research adds to theoretical knowledge	1	2	3	4	5
Research findings are written in a clear style	1	2	3	4	5
The statistical analysis is not overly technical	1	2	3	4	5
Findings can be generalised beyond the study's population	1	2	3	4	5
Research reports provide brief summaries of key findings	1	2	3	4	5
Research recommendations are economically feasible	1	2	3	4	5
Research findings support a position already held	1	2	3	4	5
Research offers new ways of thinking about an issue	1	2	3	4	5
Research recommendations are politically feasible	1	2	3	4	5
Reputation of the researcher	1	2	3	4	5
Appeal of reports (graphics, colour, humour, packaging)	1	2	3	4	5

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Perspectives of academic researchers

34. Please indicate whether you agree or disagree with the following statements:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
Academic researchers are unfamiliar with the policy-making process.	1	2	3	4	5	6
Academic researchers place too much emphasis on methods and data quality.	1	2	3	4	5	6
Academic researchers use too much jargon when it comes to communicating their research.	1	2	3	4	5	6
Academic researchers don't make enough effort to disseminate their research to policy-makers or practitioners.	1	2	3	4	5	6
Academic researchers don't make enough effort to initiate contact with policy-makers.	1	2	3	4	5	6
Academic researchers are more interested in publishing in academic journals than addressing policy or practitioner audiences.	1	2	3	4	5	6
Academic researchers lack expertise in how to communicate their research to policy-makers or practitioners.	1	2	3	4	5	6

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Perspectives on the policy-making process

35. Please indicate whether you agree or disagree with the following statements concerning policy-making in your department:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Responding to urgent day-to-day issues takes precedence over "long-term" thinking.	1	2	3	4	5
Policy-making is crisis driven.	1	2	3	4	5
The timeframe to make policy decisions is too short in which to consider all policy options.	1	2	3	4	5
The media has too much of an influence over policy-related decisions.	1	2	3	4	5
Policy-making is driven by budgetary considerations.	1	2	3	4	5
Policy decisions are based on what is politically acceptable.	1	2	3	4	5
Policy decisions are based on research data and evidence about what works.	1	2	3	4	5
There is very little benefit in using research to inform policy-related decisions because Heads of Departments and their advisors just ignore it.	1	2	3	4	5
Policy-making is captured by special interest groups.	1	2	3	4	5
There are too many competing interests to consider when making policy-relevant decisions.	1	2	3	4	5
Senior decision-makers are usually generalists who may lack specialised content knowledge.	1	2	3	4	5
Research-based analysis is valued by decision makers in my organisation.	1	2	3	4	5
My policy-related work increasingly involves working with people across different levels of government or even outside government.	1	2	3	4	5

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36. Drawing on your experience concerning the use of research, please indicate your opinion regarding the following statements.

	Always	Usually	Sometimes	Rarely	Never	Does not apply
I receive university research that is relevant to my work.	1	2	3	4	5	6
I have read and understood the university research that I receive.	1	2	3	4	5	6
I have participated in meetings for discussion of university research.	1	2	3	4	5	6
I have cited university research studies in my own professional reports or documents.	1	2	3	4	5	6
I have adapted the findings of university research to provide information useful to policy decision-making.	1	2	3	4	5	6
I have made efforts to promote the adoption of university research studies.	1	2	3	4	5	6
University research results have influenced changes in policies developed by my unit.	1	2	3	4	5	6

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Types of research impact

37. Concerning the impact of university research information on policy decision-making in your department, please indicate your opinion regarding the following statements:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
In my field of work, academic research is used to influence decisions on the allocation of resources to policies and programs.	1	2	3	4	5	6
In my field of work, academic research is used to shape and inform the design and implementation of policies and programs.	1	2	3	4	5	6
In my field of work, academic research is used to alter or transform how policy-makers and practitioners think about and understand issues or choices.	1	2	3	4	5	6
In my field of work, academic research is used to put new issues on the public and political agenda.	1	2	3	4	5	6
In my field of work, academic research is used to justify or legitimise choices already made.	1	2	3	4	5	6

General issues concerning research and its utilisation not previously covered

38. We are interested in your comments on matters concerning the use of research in policy-making or service-delivery that might not have been covered elsewhere in this survey. If you have any comments you would like to make, please include them below:

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Thank you

Thank you for taking the time to complete this questionnaire.

Your input will be valuable in contributing to our understanding of research utilisation.

A summary of the results will be available in due course from The University of Queensland Institute for Social Science Research

(http://www.issr.uq.edu.au/EBP-home)

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APPENDIX 3 – ACADEMIC INTERVIEW SCHEDULE

ARC Linkage - Academic Interview Schedule

Thanks for agreeing to be interviewed for this project. We have a series of questions relating to research collaborations with policy-makers and practitioners and we would like you to answer them in reference to your own experience. Some questions may be difficult to answer and it's fine to state you are unsure how to respond.

INTERVIEWER INSTRUCTIONS:
Reminder - Give interviewee the plain language statement and get them to sign the consent form before beginning.

Background and experience

1: Can you briefly outline your broad program of research and how it aims to influence policy and practice?
Interviewer instructions – let the respondent mention examples, but keep in mind overlap with proceeding questions.

2: When it comes to the type of applied research projects you conduct are they mainly funded through standard academic grants (e.g. ARC or the like) or client focused consultancy and commissioned work.
2a: Prompt *- Ask for examples, but not too many, need to be mindful of subsequent questions.*

Initiating projects:

3: What formal and informal strategies do you adopt to initiate research collaborations with external organisations?
3a: Prompt - *Can you give some examples?*
3b: Prompt *- What appears to have worked and why?*
3c: Prompt *– Do you mainly initiate the process or do representatives from external agencies?*
3d: Prompt – *How have your linkages with external organisations developed over time?*
Interviewer instructions – You may need to get the respondent to clarify if examples cited are in the context of standard academic grants versus client funded consultancy or commissioned work.

Conducting projects
We are interested in your experience with carrying out research collaborations with policy-makers or practitioners and the challenges of such partnerships.

4: Can you give an example of a collaborative research project that was completed successfully?
4a: Prompt *– Was this a standard academic grant or a client funded consultancy or commissioned project?*
4b: Prompt *- What appeared to ensure its success?*

5: Can you give an example of a collaborative research project that encountered problems?
5a: Prompt - *Was this a standard academic grant or a client funded consultancy or commissioned project?*

5b: Prompt *- Why was the process so difficult; did you try to address any of these problems during the project?*

Dissemination

6: When it comes to communicating and disseminating your research to government and non-government agencies what types of informal and formal approaches have you adopted?
6a: Prompt *– What seems to work well and why?*
6b: Prompt *– Are there any particular communication or dissemination strategies you have used in specific collaborative projects?*
6c: Prompt if relevant *– Are any of these examples specific to consultancy or commissioned research you have undertaken?*

7: Is there anyone within or outside the university that you have used to help disseminate your research to non-academic end-users.
7a: Prompt - If yes *– Who are they, in what context did you use them (e.g. standard academic grant or consultancy); what did they do and how successful were they at promoting your research and increasing its uptake.*
7b: Prompt – if no *– Why is that?*

Types of use (***Interviewer Instruction - please note some answers may overlap between questions, keep this in mind because we may not have to ask all of the questions***).

8: Are there any instances where your research has been used to alter or transform how policy-makers or practitioners think about issues or choices? (***Interviewer Instruction - re-emphasis "understanding", without necessarily generating a change in policy or practice)***.

9: Are there any instances where your research has influenced the design or implementation of any policies or programs?

10: Are there any instances where your research has been used to justify or legitimise choices already made by policy-makers or practitioners?

11: Are there any instances where your research has been mis-used by policy-makers or practitioners?

Barriers:

12: Drawing on your experience, are there processes in Universities that hinder the communication and transfer of research to policy-makers or practitioners?

13: Drawing on your experience, are there any processes within government that hinder the use of academic research by policy-makers or practitioners?

Improving use and uptake:

14: What types of specific strategies could academics and University administrators employ that would better support research transfer into policy or practitioner contexts?

15: Are you aware of any procedures within government organisations that help official's take-on-board relevant research?
***15a: Prompt – If yes**, what are they and how are you aware of them?*
***15b: Prompt – If no**, what types of specific strategies would help?*
15c – Prompt if relevant – if interviewee states they do not know of any processes within government then ask: **are you aware of any procedures within non-government organisations that help their staff take-on-board relevant research?**

General attitude to EBPP.

16: Do you think evidence-based policy-making is taken seriously by government?
***16a: Prompt** – Is there a difference between sectors or state and federal governments?*

APPENDIX 4 - POLICY OFFICIAL INTERVIEW SCHEDULE

PS interview protocol:

Interviewer Instructions

Briefly describe the aims of the project.

This project is an ARC funded study examining *the use of evidence in policy decision-making and* involves federal and state collaborators. Your Department participated in a staff survey and we are now conducting interviews with a select number of senior public servants to learn more about research use. *There are nine questions to be covered and they cover themes relating to the influence of research and evidence in policy decision–making, the uptake of academic research, research collaborations, the role of networks and processes to encourage the use of research. We would like you to answer them in reference to your own experience.*

- ***Give the interviewee the plain language statement.***
- ***Ask them to sign the consent form before beginning.***

1: Firstly can you give us a brief outline of your role in Department X and how long you have worked in the public sector?

2: There's been a lot of talk about evidence-based policy. What do you understand EBP to mean and what impact do you think it has on policy-decision making?

Prompt - 2a: Can you provide a specific example where research evidence has influenced policy decision-making in your department.

Prompt – 2b: Are there limits to the extent to which policy can be evidence-based?

3: In your experience is academic researched seen as relevant when making policy-decisions compared to other sources of information e.g. internally generated research or that produced by consultancy firms or pressure groups?

Prompt 3a: Do you think research evidence produced by different sources e.g. internally produced within the Department or externally produced by academics or think-tanks; has more influence over policy-development?

Prompt 3b: In circumstances where you do use academic research how do you access it?

Be aware the topic of access is covered in question 8, so responses may overlap and any issue covered about how research is accessed may need to be followed-up in question 8 about problems of accessing academic research. Also if the interviewee mentions a specific staff member they access research from, this will need to be kept in mind for Jenny B when question 8 is canvassed.

4: In your experience (or in your department) how are research projects typically initiated with academic researchers?

Prompt 4a: Is it mainly through formal arrangements e.g. Tenders and ARC (Linkage) projects or informal processes e.g. relationships with particular academics.

How the interviewee answers will determine the sequence of prompts.

Prompt 4b: To what extent do informal relationships influence the choice of academic collaborators?
Prompt 4c: Are any collaborations based on informal relationships – for example you engage with an academic you have known for a long-time and trust.
Prompt 4d: Are there any particular characteristics you look for when deciding to engage or contract academic researchers or a university research institute e.g. reputation.

5: Can you give an example of a successful research project your department engaged in with academic researchers? By successful we mean it was completed on time and you were satisfied with the outcomes.

Prompt 5a: Why was it successful?
Prompt 5b: Did you have much say or influence over its direction or design?
Prompt 5c: Did the project have an impact on the design or implementation of any policies or programs in your department?

6: Can you give an example of an unsuccessful research project that your department engaged in with academic researchers?

Prompt 6a: Why did the project encounter problems?
Prompt 6b: Did you have much say over its direction or design?
Prompt 6c: Is there anything that could have been done differently?

7: How can academic research be tailored to better meet your needs and the needs of policy-makers more generally?

Prompt 7a – your needs first in Department X.
Prompt 7b – more generally as it relates to policy decision-making.

8: Do you think policy personnel find it easy to access, understand and applying research in their work?

Prompt 8a: Are there any particular hindrances that make this difficult e.g. lack of access to relevant research, research is not valued, organisational processes hinder use or lack of research training skills.
Prompt 8b: Do you have any particular person or process in this Department that help staff access and use research evidence when designing or evaluating policies?
Be mindful of response to question 3b. If interviewee answers yes to this question try to get details of this person so Jenny B can follow up.

Prompt 8c: To what extent have you participated in forums or networks that help communicate findings of research or provide access to academic researchers? If no, are other members of staff encouraged to attend? How influential/useful are these networks/forums when it comes to policy decision-making?

9: How has the nature of public policy-making changed over time e.g. has it become more complex, unpredictable or volatile?

Prompt 9a: Does this influence the extent to which evidence and research is taken into account, if so how?
Prompt 9b: How does the politicization of certain policy decisions impact on policy-decision making?

Thanks for your time - do have anything else you wish to add?

APPENDIX 5 – CODING SCHEME EXAMPLES

THEME NAME	DEFINITION	DESCRIPTION	EXAMPLES OF THEME	ANY QUALIFICATIONS/ EXCLUSIONS
Linkage Types ***(Node)***	Reported connection/ interaction between social policy officials and academic researchers to support research use in policymaking	Code that captures the different types of connections/ relationships /interactions that academics report support the initiation of new research; the process of producing research; the dissemination of research outcomes; or enhance the perceived impact of their research.	Informal relationships; advisory group participation; involvement in forums; specific types of research partnerships such as ARC-funded research; contracted or commissioned research	Qualifications: Code tries to map this very broadly – i.e. all types of connection/relationship/ interactions – not just those historically canvassed in literature (e.g. joint research projects; contracted work) • Connection/ relationship may not direct interaction – would include connections that academics report are made via intermediary bodies such as AHURI (e.g. where research findings are brokered by the intermediary without there necessarily being direct contact/discussion between academics and policy officials) • Connection/interaction does not necessarily involve face-to-face contact – e.g. might include phone contact; communication via social media; other forms of electronic communication
Types of Informal networking ***(Sub-node – Level 1)***	Reported informal connections/ interactions between social policy officials and academic researchers to support research use in policymaking	Code that captures the different types of "informal" interactions that academics report support initiating new research projects; the process of producing research; the dissemination of research outcomes; or enhance the perceived impact of their research	• Informal discussions with friends/family/past colleague/former fellow project participants • Informal discussions with acquaintances made via some form of intermediary forum – such as an issue network; peak body; professional association	Exclusions: Interactions that happen as part of more formalised participation in research/policy process via an intermediary forum or advisory group (e.g. discussion of a research project that relates to the agenda of such a forum at a designated meeting of that forum).

Initiating/ creating informal networks ***(Sub-node – Level 2)***	How academics report that informal networks are made or grown	Code that captures the ways in which these informal networks are made or grown – including strategies, challenges and facilitators	For example: Strategies – making an effort to be involved in activities and groups where new contacts can be made Challenges – knowing who to network with in the first instance Facilitators – working in a faculty that prioritises and does things to actively support academics making connections	
Maintaining informal networks ***(Sub-node – Level 2)***	How academics report that informal networks are sustained over time	Code that captures strategies, challenges, and facilitators for maintaining informal networks that assist in maintaining informal networks over time	For example: Strategies – making time/prioritising coffee dates with former colleagues or project partners Challenges - workload demands impact on capacity Facilitators – the existence of forums that formalise connections – so that academics can dip in and out of these as time permits	
Role of informal networking ***(Sub-node – Level 1)***	The ways in which academics report that informal networking supports the impact of their research in policymaking processes	Code that captures how academics report informal networking helps in creating/ supporting research impact	• How informal networking helps academics to: • access new research funding or to refine research project briefs • better manage a research processes (e.g. obtaining input on sampling & strategies) • disseminate their research • enhance the impact of their research in policymaking processes (e.g. enhances their credibility)	

APPENDIX 6 – LINKAGES ARE CONTEXT-DEPENDENT – TABLES DETAILING KEY FINDINGS FROM POLICY OFFICIAL QUANTITATIVE DATA ANALYSIS BY AGENCY TYPE

Tables outlining key findings from an analysis of policy official linkages by agency type – State/Commonwealth & line/central

Table 1 – Agency type analysis - percentage of respondents who agree/strongly agree with the statement "When it comes to accessing and using research evidence in your day-to-day duties, there is little opportunity to build relationships with researchers outside of the public service"

	% Strongly Agree/Agree
All State (Line+ Central agencies)	56
All Commonwealth (Line+ Central agencies)	47
All line agency (State + Commonwealth)	53
All central agency (State + Commonwealth)	51
State line agency	53
Commonwealth line agency	51
State central agency	66
Commonwealth central agency	43

Table 2 – "Does your work unit contract academics to undertake research projects?"

%	Commonwealth		State* (NSW+VIC+QLD)	
	Line	Central	Line	Central
Yes	51	19	48	33
No	36	66	36	49
Don't know	13	15	16	17

Table 3 – "Number of external research partners whom you have worked with in the past three years – University Research Centres"

% respondents reporting no. of partners	Commonwealth		State* (NSW+VIC+QLD)	
	Line	Central	Line	Central
0	38	57	38	55
1-5	3	39	55	43
6-10	3	3	5	-
11+	2	-	1	1

Table 4 – "Number of external research partners whom you have worked with in the past three years –Individual University Researchers"

% respondents reporting no. of partners	Commonwealth		State* (NSW+VIC+QLD)	
	Line	Central	Line	Central
0	61	61	48	63
1-5	31	34	43	33
6-10	6	3	5	2
11+	2	2	3	2

Table 5 - Importance accorded to linkage-related means for obtaining research information by work area

Means for obtaining research information important/very important (%)	Commonwealth		State* (NSW+VIC+QLD)	
	Line	Central	Line	Central
Involvement in forums/networks that share research	61	44	72	47
Conferences or seminars involving university researchers	60	49	65	53
Active involvement in research projects with academics	39	20	48	21
Membership on expert panels or committees involving researchers	41	35	46	30
Commissioning university researchers	44	12	40	24
Emailing or phoning academics about their research	22	15	36	19

Tables outlining key findings from an analysis of policy official linkages by agency type – central agency breakdown

Table 6 – central agency analysis – "Research is important in my professional field"

%	Commonwealth			State
	ABS	Productivity Commission	Other Central Agencies	Central Agencies
Strongly Agree/Agree	75	100	69	82
Neutral	13	-	26	14
Disagree/Strongly Disagree	4	-	5	3
Does Not Apply	7	-	1	1

Table 7 – central agency analysis – "Number of external research partners whom you have worked with in the past three years – University Research Centres"

% respondents reporting no. of partners	Commonwealth			State
	ABS	Productivity Commission	Other Central Agencies	Central Agencies
0	58	45	61	55
1-5	37	50	37	43
6-10	4	5	1	-
11+	1	-	-	1

Table 8 – central agency analysis – "Number of external research partners whom you have worked with in the past three years – Individual University Researchers"

% respondents reporting no. of partners	Commonwealth			State
	ABS	Productivity Commission	Other Central Agencies	Central Agencies
0	64	45	63	63
1-5	30	47	36	33
6-10	4	5	1	2
11+	1	4	-	2

Table 9 - central agency analysis – "How often in the last 12 months have you personally consulted with University Researchers?"

(%)	Commonwealth			State
	ABS	Productivity Commission	Other Central Agencies	Central Agencies
Often/very often	14	53	20	18
Sometimes/Rarely	51	40	59	59
Not at all	35	7	21	23

Table 10 - central agency analysis - importance accorded to linkage-related means for obtaining research information by work area

Means for obtaining research information important/very important (%)	Commonwealth			State
	ABS	Productivity Commission	Other Central Agencies	Central Agencies
Involvement in forums/networks that share research	53	37	34	47
Conferences or seminars involving university researchers	53	58	39	53
Active involvement in research projects with academics	26	20	11	21
Membership on expert panels or committees involving researchers	40	33	27	30
Commissioning university researchers	11	27	7	24
Emailing or phoning academics about their research	24	52	21	19

APPENDIX 7: INDEPENDENT VARIABLES MEASURES FOR POLICY OFFICIAL REGRESSION

Variable	Index Measure
Importance of information from state/local government	This index measures the sources of research that policymakers engage with, specifically local and state government. This index is comprised of 3 dimensions that range on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The 3 dimensions are: (1) Other state government agencies in your state; (2) Comparable state government agencies in other states; (3) Local government.
Importance of information from federal gov, intern org, uni researchers	This index measures the sources of research that policymakers engage with, specifically federal government and universities. This index is comprised of 3 dimensions that range on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The 3 dimensions are: (1) Federal government agencies; (2) International organisations; (3) University researchers.
Importance of information from interest grps, think tanks, professional associations, professional associations, private consultants	This index measures the sources of research that policymakers engage with, specifically interest groups and private consultants. This index is comprised of 4 dimensions that range on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The 4 dimensions are: (1) Interest groups; (2) Professional or industry associations; (3) Think Tanks; (4) Private consultants.
University research partners	This index is the sum of two variables measuring the number of external partners they have had from University research centres and Institutes and Individual university researchers.
Government research partners	This is a single item variable that reflects the number of external partners they have had from other state or Commonwealth department or agencies.
Private sector research partners	This is a single item variable that reflects the number of external partners they have had from private sector research organisations.

Linkage mechanisms	This Index measures the linkage mechanisms that are deemed important by policymakers. This index is comprised of eight dimensions that range on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The eight dimensions are: (1) Meetings with university researchers; (2) Emailing or phoning academics about their research; (3) Conferences or seminars involving university researchers; (4) Commissioning university researchers; (5) Membership on expert panels or committees involving researchers; (6) Active involvement in research projects with academics; (7) Active involvement with research projects conducted by other departments; (8) Involvement in forums/networks that share research.
Policy-making based on sound evidence	This Index measures the perspectives policy personnel have of the policymaking process in their department, specifically in terms of being based on sound evidence. This index is comprised of two dimensions that range on a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The two dimensions are: (1) Policy decisions are based on research data and evidence about what works; (2) Research-based analysis is valued by decision-makers in my organisation.
Previously employed at a University	This is a dummy variable created from the question asking policy personnel if they had previously been employed in the university sector. Never been employed in the university sector was used as the reference group.
Educational level	This is a dummy variable created from the question asking policy personnel what the highest level of education they had attained. Year 12 was used as the reference group.
Position	This is a dummy variable created from the question asking policy personnel what their current position was. Policy officer was used as the reference group.

APPENDIX 8: INTERNAL RELIABILITY COEFFICIENTS (CRONBACH'S ALPHA) FOR POLICY OFFICIAL REGRESSION VARIABLES

Name of variable	Number of cases	Number of items in scale	Cronbach alpha
Research utilisation	1741	5	0.87
Importance of information from state/local government	1741	3	0.75
Importance of information from federal gov, intern org, uni researchers	1741	3	0.63
Importance of information from interest grps, think tanks, professional associations, professional associations, private consultants	1741	4	0.75
University research partners	1741	2	0.63
Linkage mechanisms	1741	8	0.90
Policy-making based on sound evidence	1741	2	0.58

APPENDIX 9: MEANS & STANDARD DEVIATIONS[38] FOR POLICY OFFICIAL REGRESSION DEPENDENT AND INDEPENDENT VARIABLES

	Min	Max	M	SD
Research Utilisation	1	5	3.15	0.78
Importance of information from state/local government	1	5	3.55	0.78
Importance of information from federal gov, intern org, uni researchers	1	5	3.81	0.65
Importance of information from interest grps, think tanks, professional associations, professional associations, private consultants	1	5	3.62	0.63
University research partners	0	120	3.56	6.68
Government research partners	0	150	3.44	7.25
Private sector research partners	0	50	1.17	2.68
Linkage mechanisms	1	5	3.40	0.72
Policy-making based on sound evidence	1	5	3.45	0.74

[38] Standard deviations only reported for continuous measures.

APPENDIX 10: INDEPENDENT VARIABLES MEASURES FOR ACADEMIC REGRESSION

Variable	Index Measure
Government partners	This index is the sum of two variables measuring the number of partnerships they have had from Commonwealth and state government departments and agencies.
Linkages	This index measures the role academic researchers take when participating in research activities. This index is comprised of 2 dimensions that range on a 5-point scale, ranging from 1 (never) to 5 (always). The 2 dimensions are: (1) Within multidisciplinary teams; (2) With policymakers and practitioners from government and non-government institutions.
Targeting of research	This index measures the extent to which academic research is directed to a variety of audiences. This index is comprised of 4 dimensions that range on a 4-point scale, ranging from 1 (never) to 4 (always). The 4 dimensions are: (1) Policymakers within government; (2) Practitioners/managers within the public sector; (3) Practitioners/managers within the community sector; (4) Practitioners/managers within the private sector.
Experience disseminating research to non-academic end-users	This is a single item variable measuring whether academic researchers have experience disseminating their research to non-academic end-users. This variable is measured on a 5-point scale, ranging from 1 (not at all) to 5 (to a great extent).
My workplace has experience disseminating research to non-academic end-users	This is a single item variable measuring whether their school/faculty/research centre/institute has experience disseminating academic research to non-academic end-users. This variable is measured on a 5-point scale, ranging from 1 (not at all) to 5 (to a great extent).
Dissemination	This index is based on the importance attributed to organising meetings and dissemination activities for end-users when carrying-out research. This index is comprised of 4 dimensions that range on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The 4 dimensions are: (1) preparing and conducting meetings in order to plan the subject and scope of projects with end users; (2) regular formal meetings to report on a study's progress with end-users; (3) formal meetings to discuss findings with end-users; (4) preparing and implementing research dissemination activities for end-users.
Informal contacts	This index measures the importance of using informal contacts for disseminating academic research. This index is based on 3 items measured on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The 3 items are: (1) informal contacts with policy

	personnel of government agencies (2) informal contacts with public or community sector practitioners; (3) informal contacts with personnel of private sector organisations.
Seminars and presentations	This index measures the importance of using seminars and workshops to disseminate academic research. This index is based on 4 items measured on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The 4 items are: (1) participation in seminars and workshops organised by government policy agencies (2) participation in seminars and workshops organised by practitioners within public or community sectors; (3) participation in seminars and workshops organised by private sector organisations; (4) presentations to parliamentary committees.
Sending reports	This index measures the importance of using reports to disseminate academic research. This index is based on 4 items measured on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The 4 items are: (1) sending reports to government policy agencies (2) sending reports to practitioners within public or community sectors; (3) sending reports to private sector organisations; (4) sending reports to parliamentary committees.
Publications in refereed journals	This is a single item variable measuring the importance of disseminating publishing in refereed journals and is another method employed by academics to present or discuss their research. The importance of this method is measured on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important).
Media coverage	This index measures the importance of the media as a method to disseminate academic research. This index is based on 3 items measured on a 5-point scale, ranging from 1 (very unimportant) to 5 (very important). The 3 items are: (1) participation in radio and/or television programs (2) publication of articles in non-academic outlets; (3) publication in electronic media, e.g. blogs and other social media.
Academic level D & E	This is a dummy variable created from the question asking academic researchers what their current academic position is. Levels A-C was used as the reference group.
Previous employment in government agency or department	This is a dummy variable created from the question asking academic researchers whether they have been previously employed in a government agency/department. Never been employed in a government agency/department was used as the reference group.
Research only position	This is a dummy variable created from the question asking academic researchers what the nature of their primary position is. Teaching and research was used as the reference group.

APPENDIX 11: INTERNAL RELIABILITY COEFFICIENTS (CRONBACH'S ALPHA) FOR ACADEMIC REGRESSION VARIABLES

Name of variable	Number of cases	Number of items in scale	Cronbach alpha
Research utilisation	497	5	0.87
Government partners	497	2	0.56
Linkages	497	2	0.60
Targeting of research	497	4	0.70
Dissemination	497	4	0.92
Informal contacts	497	3	0.62
Seminars and presentations	497	4	0.67
Sending reports	497	4	0.70
Media coverage	497	3	0.64

APPENDIX 12: MEANS AND STANDARD DEVIATIONS[39] FOR ACADEMIC REGRESSION DEPENDENT AND INDEPENDENT VARIABLES

	Min	Max	M	SD
Research Utilisation	1	5	3.50	0.76
Government partners	0	56	4.44	5.22
Linkages	1	5	3.11	0.76
Targeting of Research	1	4	2.32	0.57
Dissemination	1	5	4.00	0.85
Informal contacts	1	5	3.78	0.77
Seminars and presentations	1	5	3.42	0.74
Sending reports	1	5	3.42	0.75
Media coverage	1	5	3.42	0.72

[39] Standard deviations only reported for continuous measures.